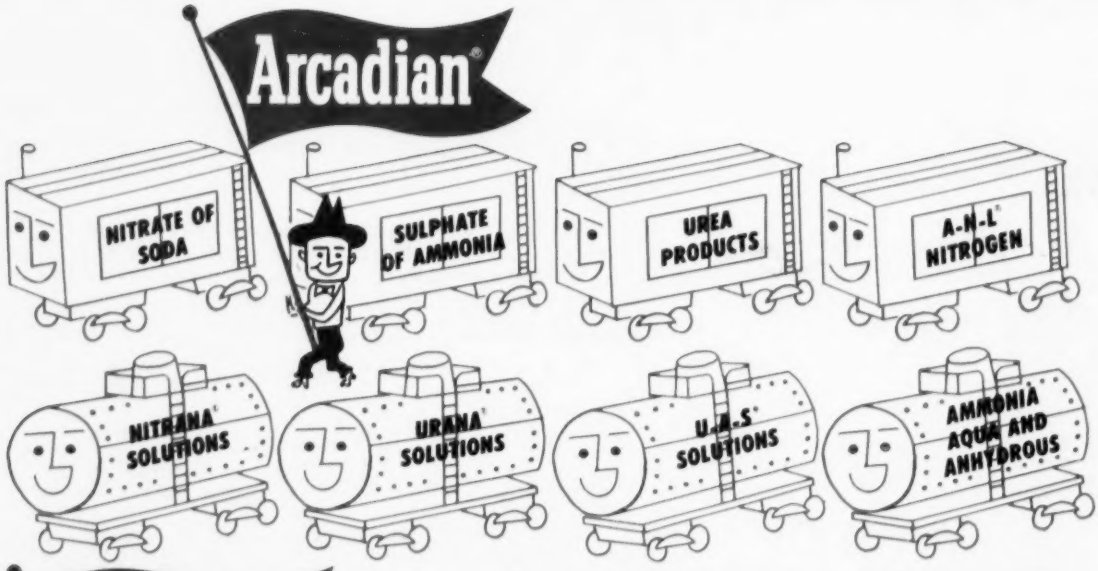
FEBRUARY, 1956

Commercial Fertilizer

and PLANT FOOD INDUSTRY



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PRODUCTS FOR PROFITABLE FARMING

Nitrogen Solutions
Nitrana®, Urana® and U-A-S*

Anhydrous and Aqua Ammonia

American Nitrate of Soda

A-N-L® Nitrogen Fertilizer

Urea Products

Sulphate of Ammonia

*Trade-mark

This squad of specialists can accomplish every job you've got for nitrogen in your fertilizer production and sales program. Nitrogen Division's ARCADIAN® line of solids and solutions provides the many forms of nitrogen needed to fit every ammoniation, curing and mixing situation. Our experienced technical service representatives have a detailed knowledge of fertilizer production and ammoniation problems. Their technical help is available to Nitrogen Division customers at no cost.

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NITROGEN DIVISION ALLIED CHEMICAL

Three of the A.A.C. Co's electrically-operated draglines at work at our phosphate mines in Central Florida. Bucket capacities range from 9½ to 17 cubic yards. The 17-yard draglines with their 175-foot booms each weigh more than a million and a half pounds and can move 35,000 tons of material in 24 hours. From these rock deposits flow a continuous stream of high quality phosphate rock, assuring a dependable source of supply of AA QUALITY phosphorus products, see list below.

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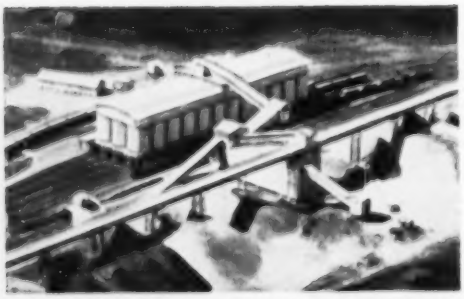
for over 85 years a symbol of quality and reliability



From the air—wet rock storage and drying plant, with dry rock storage silos in background. These silos, 29 in number, have a total capacity of 40,000 tons of dried rock. Under the silos are four runways where 40 railroad cars can be loaded at a time.

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All grades of Florida Pebble Phosphate Rock
AA QUALITY Ground Phosphate Rock
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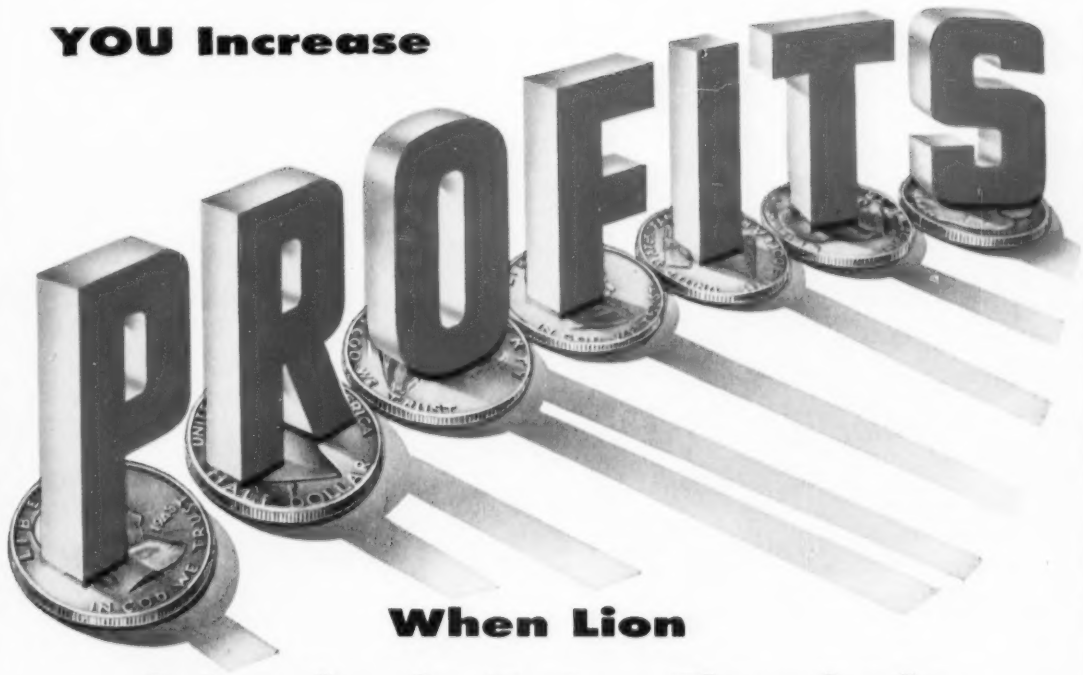
YOU Increase



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Lion Anhydrous Ammonia—82.2% nitrogen. Quality guaranteed.

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Lion Nitrogen Fertilizer Solutions—Various types to suit your particular manufacturing needs.

Lion Sulphate of Ammonia—White, uniform, free flowing crystals. Guaranteed 21% nitrogen.

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Lion nitrogen products are manufactured under rigid controls to meet exacting specifications—ending the costly production delays that result when ingredients vary in quality from day to day. With Lion products, you produce with maximum efficiency and profit—and you maintain the quality standards your customers demand.

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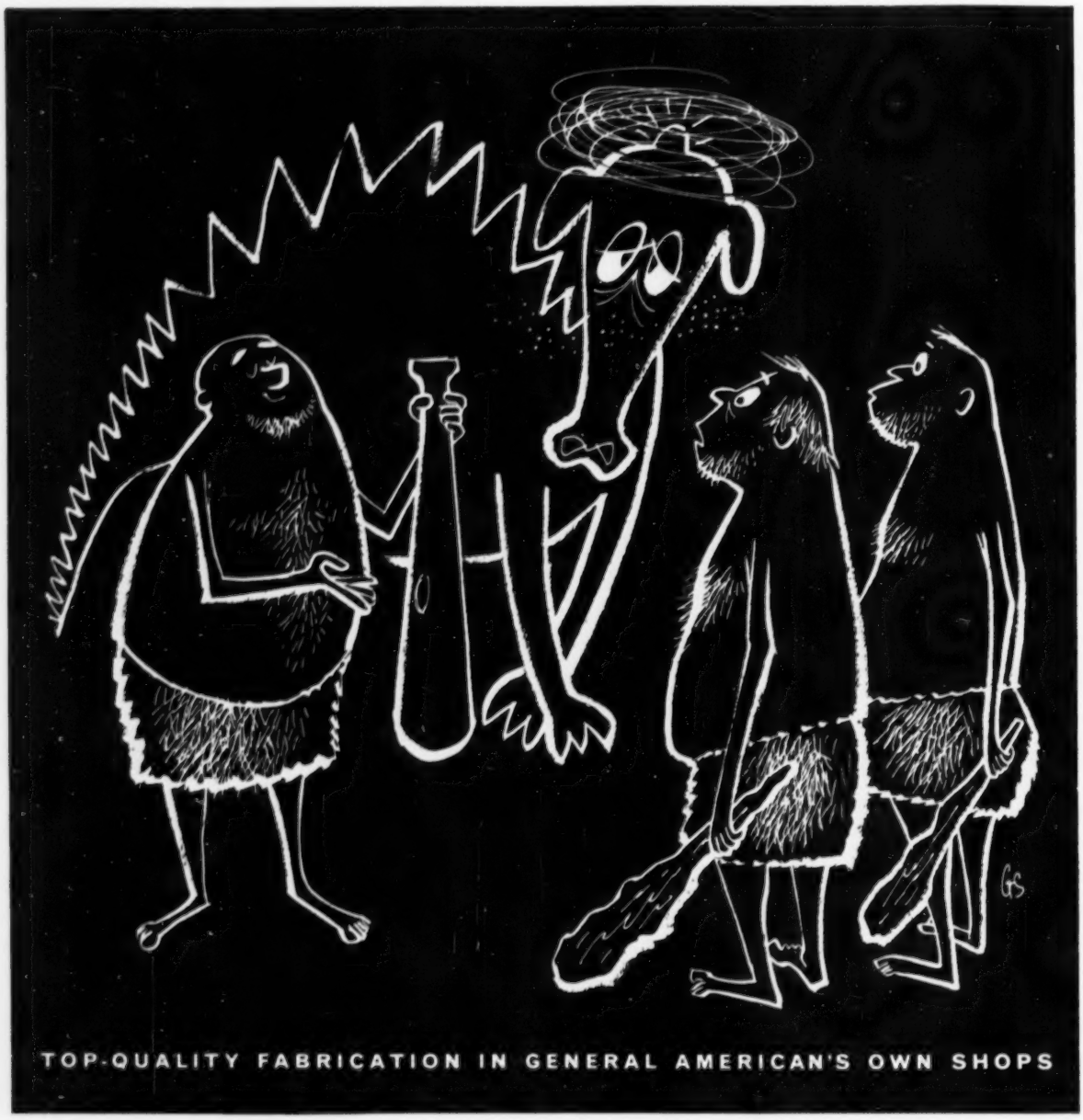

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2. Pre-testing in pilot-plant operation to assure performance.
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Davison's Triple Superphosphate has 45/46% available P_2O_5 and is supplied in the easy-to-use granulated form or run-of-pile.

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Published Monthly by
WALTER W. BROWN
PUBLISHING CO., INC.
75 Third St., N. W., Atlanta 8, Georgia
Phone Atwood 4160

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Phone REPUBLIC 1-3050

Address all correspondence to Atlanta Publishing Offices, sending direct to COMMERCIAL FERTILIZER and PLANT FOOD INDUSTRY, 75 Third St., N. W., Atlanta 8, Georgia.

Vol. 92 No. 2 *Established 1910* February, 1956

Commercial Fertilizer

and PLANT FOOD INDUSTRY

Subscription rates: United States, $3.00 per year; 5 years, $12.00. Foreign $5.00 per year.

Contents

Commenting Freely, by *Bruce Moran* 6
Just Around the Corner, by *Vernon Mount* 12
USDA Consumption Report, by *Scholl, Wallace & Fox* 24
40,000 Miles of Roadside Fertilizer 26
The Economic Outlook for Fertilizer, by *Alstetter & McVickar* 30
Staff Tonnage Reports 37
Potash and the South, by *J. Fielding Reed* 38
The Changing Farm Picture, by *W. H. Garman* 40
Valley's Versatile New Plant 42
Around the Map 43
Progress . . . or Die, by *Dr. Robert H. Kean* 51
Continued Rise in Co-op Membership 52
Personals 55
Changes 61
Obituaries 63
Research Results and Reports 63
Associations 65
Industry Calendar 66
Crop Chemicals 70
Classified Advertising 73

COMMERCIAL FERTILIZER and PLANT FOOD INDUSTRY, entered as second class matter, October 12, 1910, at the post office at Atlanta, under the Act of March 3, 1879. Published monthly except semi-monthly in September, by Walter W. Brown Publishing Co., Inc., 75 Third St., N. W., Atlanta 8, Georgia.

Commenting Freely

by BRUCE MORAN

You don't have to be such an old old-timer to remember when the curve of fertilizer sales closely followed the curve of farm income on the charts. As we said in our 1955 Year Book, the calendar year of 1954 was the 16th consecutive year that fertilizer consumption pushed to a new high.

The 1954 calendar year was up 1.4% over 1953 . . . so the fact that the 1954-55 season was off 1.52% from 1953-54 is not too significant when set against the sharp, deep drop of farm income in recent years.

As we said some months ago, the marginal farmer is vanishing—his land being absorbed by the larger, more efficient and more business-like agriculturalist. This is a man who knows the truth that the way to farm economy, the way to beat the squeeze, is to fertilize so as to grow more per man, per machine, per acre.

We are a long, long way—especially in the areas of the mid-West and West which have only lately been converted to fertilizer—from the days when a farm was appraised in terms of mules. And we have come a long way from the days when 10,000,000 annual tons was a dream figure, and the present 20,000,000 annual tons not even dreamed about.

IN LESS THAN 19 MONTHS . . .

Standard of the Industry

GRANULATION OF MIXED FERTILIZERS

"KEYSTONE OF THE INDUSTRY"

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Wet-Strength Kraft	✓	
Water Repellent Kraft	✓	
Stak-LOK Super Rough Kraft	✓	
Valve Bags—sewn or pasted	✓	
Open Mouth Bags—sewn or pasted	✓	
Flat Sewn Valve Bags	✓	
Flat Sewn Open Mouth Bags	✓	
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JUST AROUND THE CORNER *by Vernon Mount*

THE FACTS OF LIFE and politics don't mix, as both Mr. Dulles and Mr. Benson have recently demonstrated. It is not pleasant to contemplate the "verge of War", nor that there are marginal farmers who would be better off in other pursuits. You and I might discuss these things freely, without criticism from anybody. But when Mr. Secretary does so the uproar is deafening, except to the uproarious who are merely pursuing their own political bias.

A TOP EXECUTIVE, retired from business and now converted into a Regional Director, recently expressed wide-eyed awe at the things he's not permitted to do as a Government man. He is surrounded not only by laws so complex that few understand them, but by deep-rooted Civil Service people who lift admonitory fingers with glee when he violates the slightest tradition.

THIS IS WHY business men fume at Government, and why it is so really difficult to find capable administrators willing to go into Government service. If you were a ninety-day wonder in the army, you know what it's like when a grizzled top-kick tells you what you can and can't do.

IT'S A REAL PROBLEM, and until we solve it we won't ever have efficient government or really lower taxes.

Yours faithfully,

Vernon Mount

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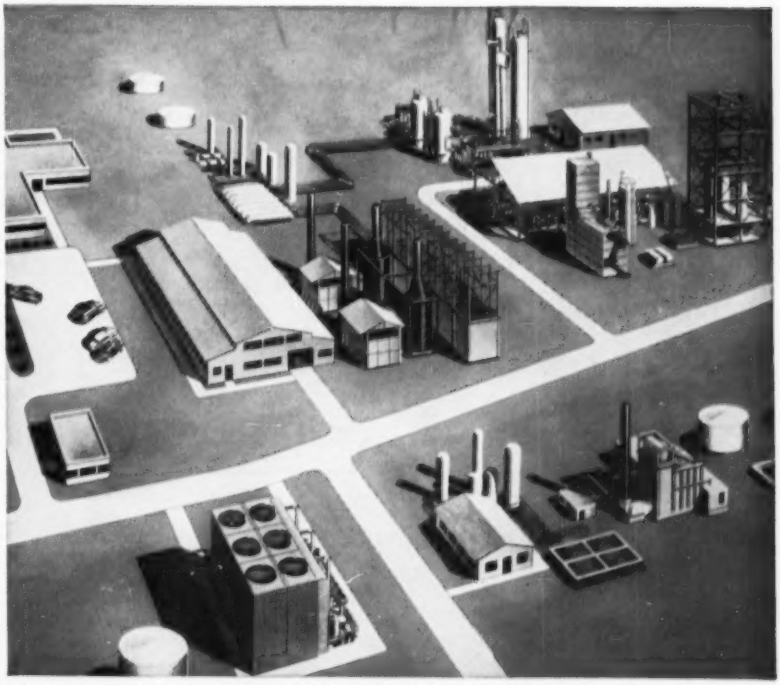
First Complete Ammonia Products Plant Planned For Puerto Rico

Lummus designed unit and will do construction

Construction will begin shortly on a new anhydrous ammonia, sulfuric acid and ammonium sulfate plant at Guanica, Puerto Rico for Gonzalez Chemical Industries, Inc., San Juan. With the creation of this industry, the second largest new endeavor on the island, another milestone is passed in the Puerto Rican Government's industrialization program.

The plant will provide a dependable source of ammonia-nitrogen and related products for fertilizer and industry of the island. This is of particular importance in times of international emergency when shortages may seriously handicap growers of sugar cane, tobacco, coffee and other industrial chemical developments.

Forty-two thousand tons of anhydrous ammonia will be produced per year. Part will be sold as such, and the balance will be converted to aqueous ammonia, sulfuric acid, ammonium sulfate and possibly other materials for use by agriculture and industry.



Artist's conception of complete ammonia products plant for Gonzalez Chemical Industries, Inc., Guanica, Puerto Rico.

This will make the fourth ammonia unit in two years for Lummus. It adds another to the 700-odd plants and installations completed by Lummus throughout the world. May our engineers serve you—at home or overseas?

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4 Ammonium Nitrate

Phillips *66* Prilled Ammonium Nitrate contains 33.5% nitrogen. The small, coated prills or pellets resist caking, handle easily. Depend on Phillips *66* Prilled Ammonium Nitrate for uniform free-flowing properties in formulations and top-notch crop response as a direct application material.

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Phillips *66* Triple Superphosphate contains 46% available phosphoric acid. Ideal for use in formulation of high-analysis fertilizers.

Phillips 66

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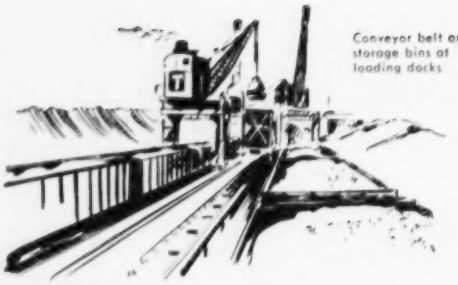

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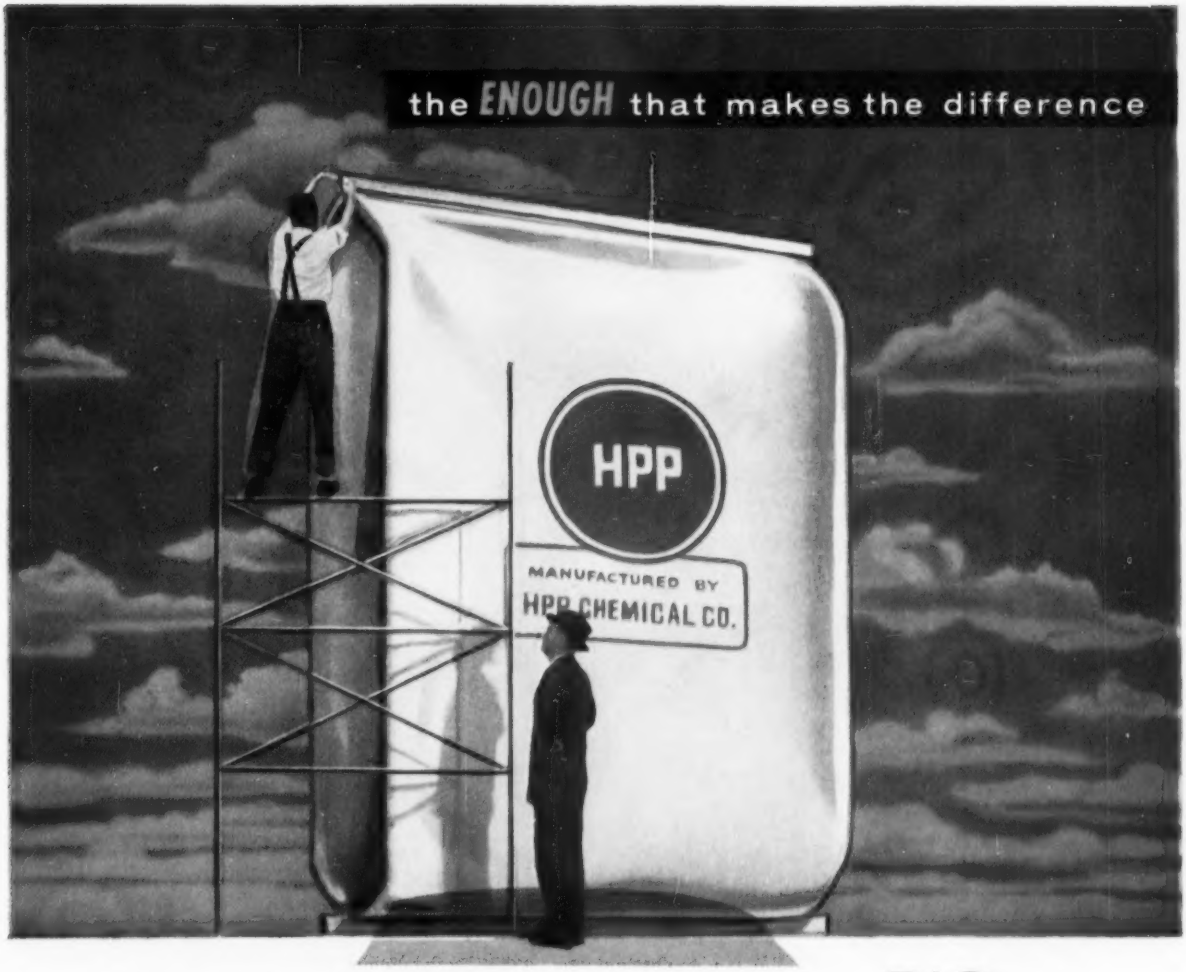

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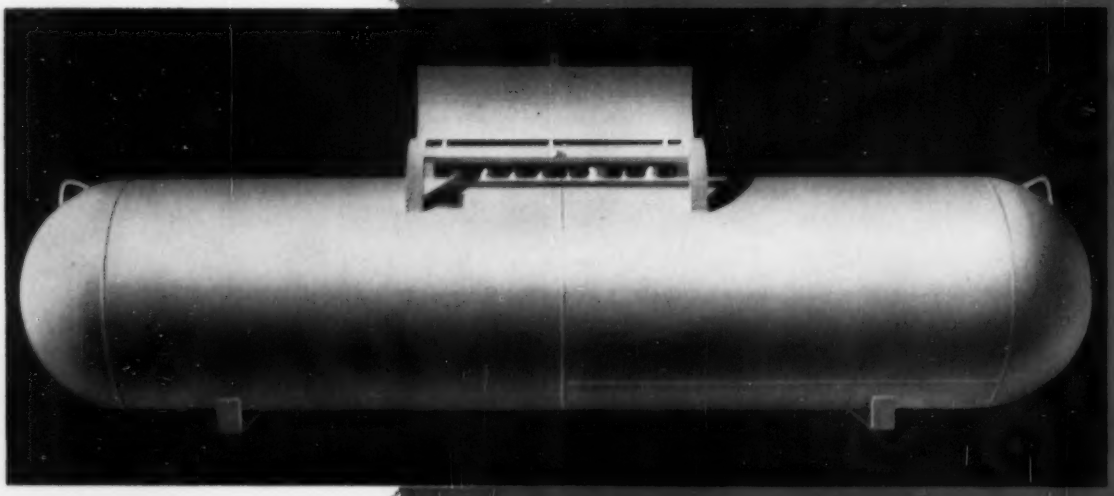

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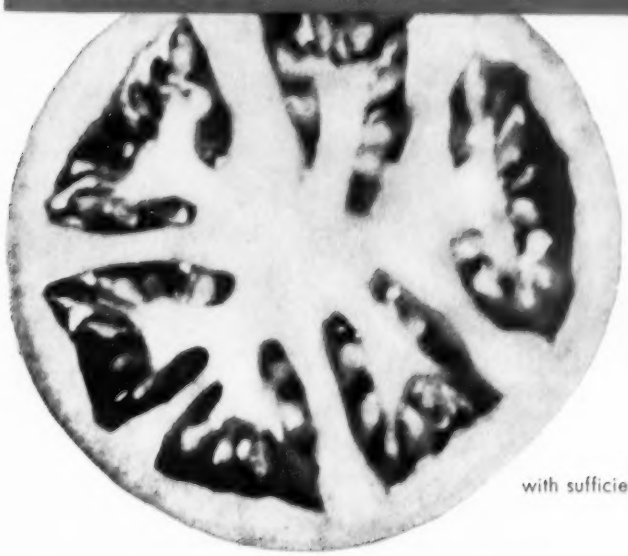

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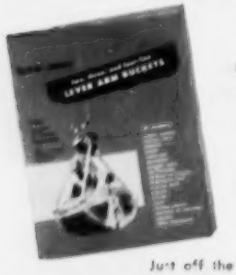

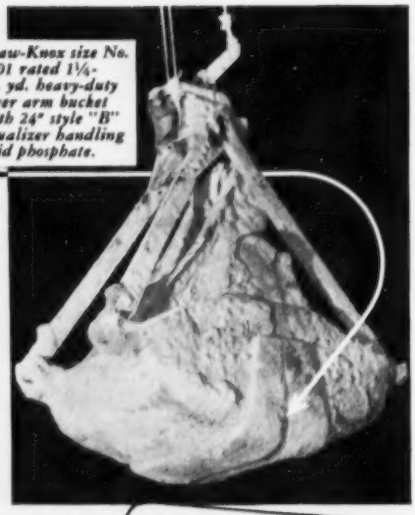

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USDA PRELIMINARY CONSUMPTION REPORT

1954-55 SEASON

(YEAR ENDED JUNE 30)

by WALTER SCHOLL, HILDA M. WALLACE, AND ESTHER I. FOX
Soil and Water Conservation Research Branch
Agricultural Research Service
U. S. Department of Agriculture
Beltsville, Maryland

Commercial fertilizers, estimated to have been consumed in United States and Territories (Hawaii, Puerto Rico, Alaska) for the year ended June 30, 1955, amount to 22,468,000 tons. This quantity represents a decrease from 1953-54 of 1.3 percent or 305,000 tons. Consumption of commercial mixtures was estimated to be 15,151,000 tons, a decrease of 2.5 percent or 390,000 tons, and materials for direct application 7,317,000 tons, an increase of 1.2 percent or 85,000 tons.

Included in the above total of materials is 6,532,000 tons of products containing one or more of the primary nutrients (N P_2O_5, K_2O) and 785,000 tons of the secondary and trace element materials which do not contain these elements. The consumption of these fertilizers was, respectively, 85,000 tons (1.3 percent) less and 170,000 tons (27.5 percent) more than in 1953-54. The change in tonnage of the secondary and trace element materials was caused mainly by the increased use of gypsum in the Pacific region.

The estimated consumption of fertilizers for the 9 regions of the Continental United States and the Territories are tabulated in Table 1. In all the Central regions, where approximately 48 percent of the tonnage of fertilizers was consumed, consumption was from 1.7 to 8.7 percent lower than during the 1953-54 season. At the same time, consumption was higher by 0.1 to 17.0 percent in all of the other regions and the Territories.

The largest decrease in tonnage in both mixtures and materials was in the East North Central region. The decline in mixtures was not accountable to any particular grade or group of grades but that of materials was largely due to lowered consumption of phosphate rock for direct application. Consumption of phosphate rock, in this region, was approximately 405,000 tons compared with 606,379 tons during the 1953-54 season.

Both mixtures and materials increased in the New England region, the increase in materials being a reflection of the return to superphosphate for direct application.

In the Middle Atlantic and East South Central regions, the tonnage of phosphates for direct application was generally lower than in 1953-54.

The relatively high percentage increase in tonnage of materials in the Pacific region was, aside from the increased tonnage of gypsum, due considerably to the increase in tonnage of anhydrous, and in particular aqueous ammonia.

Primary Plant Nutrients

The estimated quantity of primary nutrients contained in all fertilizers consumed in United States and Territories was 6,047,000 tons. This amounts to 151,000 tons (2.6 percent) more than in 1953-54. This total, in 1954-55 comprises 1,984,000 tons of nitrogen, 2,228,000 tons of available P_2O_5, and 1,835,000 tons of K_2O. These quantities represent increases for ni-

Table 1.—Preliminary Fertilizer Consumption in United States, Year Ended June 30, 1955, with Comparisons.

Region	Consumption [1]			Percent Change from 1953-54		
	Mixtures	Materials [2]	Total	Mixtures	Materials	Total
	1,000 tons	1,000 tons	1,000 tons	Percent	Percent	Percent
New England[3]	373	79	452	+6.0	+22.1	+ 8.5
Middle Atlantic[4]	1,882	217	2,099	+2.4	— 6.0	+ 1.5
South Atlantic[5]	4,922	1,149	6,071	— 2.0	+ 2.5	+ 1.2
East North Central[6]	3,371	1,031	4,402	— 6.9	—14.2	— 8.7
West North Central[7]	1,283	905	2,188	— 4.5	+ 2.7	— 1.7
East South Central[8]	1,983	910	2,893	— 2.8	— 7.5	— 4.3
West South Central[9]	704	659	1,363	— 1.3	— 3.3	— 2.3
Mountain[10]	54	339	393	— 3.3	+ 0.7	+ 0.1
Pacific[11]	297	1,897	2,194	+8.9	+18.4	+17.0
Continental U. S.	14,869	7,186	22,055	— 2.6	+ 1.2	— 1.4
Territories[12]	282	131	413	— 0.4	+ 1.7	+ 0.2
Total: 1954-55	15,151	7,317[13]	22,468	— 2.5	+ 1.2	— 1.3
1953-54	15,541	7,232[13]	22,773	0.0	0.0	0.0
1952-53	15,722	7,690[13]	23,413	+1.2	+ 6.3	+ 2.8

[1] Includes fertilizers distributed by Government Agencies. [2] Includes: Ground phosphate rock and colloidal phosphate, basic slag, secondary and trace element materials, such as borax, metallic salts, sulfur, gypsum, etc., used as separate materials. Does not include liming materials or the quantity of materials used for manufacture of commercial mixtures. [3] Maine, N. H., Vt., Mass., R. I., Conn. [4] N. Y., N. J., Pa., Del., D. C., Md., W. Va. [5] Va., N. C., S. C., Ga., Fla., [6] Ohio, Ind., Ill., Mich., Wis. [7] Min., Iowa, Mo., N. D., S. D., Neb., Kan. [8] Ky., Tenn., Ala., Miss. [9] Ark., La., Okla., Tex. [10] Mont., Idaho, Wyo., Colo., N. Mex., Ariz., Utah Nev. [11] Wash., Oregon, Calif. [12] Hawaii, P. R., Alaska. [13] Materials not guaranteed to contain N, P_2O_5, or K_2O included in 1954-55 total, 785,000 tons; 615,513 tons in 1953-54; and 877,487 tons in 1952-53.

Table 2.—Estimated Content of Primary Plant Nutrients in All Fertilizers Consumed in United States, Year Ended June 30, 1955, with Comparisons

Region [1]	Quantity				Percent Change from 1953-54			
	N	Available P_2O_5 [2]	K_2O	Total	N	Available P_2O_5	K_2O	Total
	1,000 tons	1,000 tons	1,000 tons	1,000 tons	Percent	Percent	Percent	Percent
New England	29	48	47	124	+15.9	+13.9	+ 9.3	+12.6
Middle Atlantic	123	230	195	548	+11.5	— 1.6	+ 6.1	+ 3.8
South Atlantic	398	472	485	1,355	+ 4.1	— 4.0	+ 4.8	+ 1.4
East North Central	282	539	576	1,397	+ 8.1	— 1.5	— 3.0	— 0.4
West North Central	298	355	162	815	+12.0	+ 4.8	+ 4.7	+ 7.3
East South Central	271	254	213	738	+ 2.9	— 6.7	— 0.6	— 1.6
West South Central	192	152	82	426	+ 5.8	+ 5.0	— 3.3	+ 3.6
Mountain	68	57	3	128	+ 3.6	— 3.2	+28.3	+ 0.8
Pacific	265	101	31	397	+12.8	+ 9.5	+12.8	+11.9
Continental U. S.	1,926	2,208	1,794	5,928	+ 7.6	— 0.6	+ 1.5	+ 2.6
Territories	58	20	41	119	+ 0.9	— 0.7	+ 3.3	+ 1.4
Total: 1954-55	1,984	2,228	1,835	6,047	+ 7.4	— 0.6	+ 1.6	+ 2.6
1953-54	1,848	2,242	1,806	5,896	0.0	0.0	0.0	0.0
1952-53	1,637	2,271	1,738	5,646	—11.4	+ 1.3	— 3.8	— 4.2

[1] States in regions listed in footnote of Table 1.
[2] Includes, as available P_2O_5, 2 percent of the colloidal phosphate and 3 percent of the phosphate rock marketed for direct application.

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trogen of 136,000 tons (7.4 percent), for K_2O 29,000 tons (1.6 percent), and for available P_2O_5 a decrease of 14,000 tons (0.6 percent) from their consumption in 1953-54.

Consumption of primary nutrients supplied by mixed fertilizers was estimated to be 4,203,000 tons. This total comprises 814,000 tons of nitrogen, 1,776,000 tons of available P_2O_5, and 1,613,000 tons of K_2O. These figures represent 4.6 percent more nitrogen, 1.4 percent less available P_2O_5, and 1.1 percent more K_2O than those for 1953-54.

Materials used for direct application supplied 1,170,000 tons of nitrogen, 453,000 tons of available P_2O_5, and 221,000 tons of K_2O. These tonnages represent increases in nitrogen of 9.4 percent; available P_2O_5, 2.8 percent, and K_2O, 5.2 percent above those for 1953-54.

The estimated content of primary nutrients in all fertilizers consumed in each region with the percent change from 1953-54 is shown in Table 2. Only nitrogen showed a nation-wide increase. This circumstance reflects the current trend towards higher-nitrogen fertilizers. The average nitrogen content of mixed fertilizers was 5.4 percent and of primary nutrient materials 17.9 percent compared with 5.01 percent and 16.16 percent, respectively, in 1953-54.

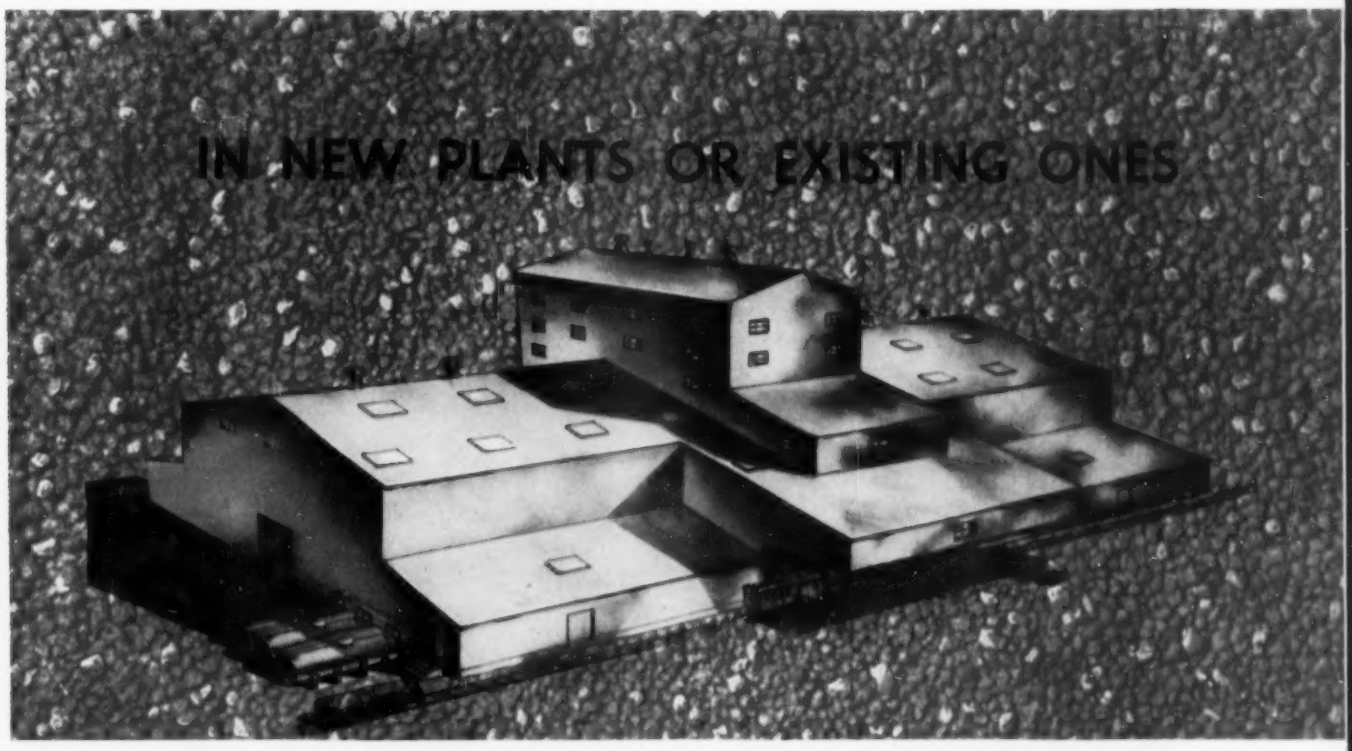
Regional changes in the amount of available P_2O_5 supplied by fertilizers compared with 1953-54 varied from a decrease of 6.7 percent in the East South Central region to an increase of 13.9 percent in the New England region. The national decrease in P_2O_5 was largely the result of less phosphates being used in mixtures relative to the increases shown for nitrogen and potash. The average content of available P_2O_5 in all mixtures consumed was but 11.7 percent compared with 11.59 percent in 1953-54.

The four regions showing net increases in available P_2O_5 are New England, an increase in both mixtures and materials; West North Central, a 23 percent increase supplied by materials while in mixtures a decrease of 2.7 percent; West South Central, approximately 5 percent increase from both mixtures and materials; and in the Pacific, a 14.7 percent increase from mixtures and 7.0 percent increase from materials. Approximately 27 percent of the total consumption of available P_2O_5 was used in the West North Central region. This area is a large consumer of the ammonium phosphates (11-48, 13-39, 16-20 grades) and triple superphosphate. Apparent consumption of these materials increased approximately 44 percent reflecting the large increase in available P_2O_5.

Although the national consumption of K_2O showed a net increased use, there was a net decrease in consumption in the East North Central, East South Central, and West South Central regions. The decrease is largely reflected in the decrease in consumption of mixtures and only a very slight change in the average K_2O content of mixtures used in these regions. The high percentage increase in the Mountain region is not significant as total use in this region is very small.

The national increase in use of K_2O is reflected more generally by an increase in use of potash in mixtures rather than the use of potash materials for direct application. The national average of K_2O in mixtures increased from 10.27 percent in 1953-54 to 10.6 percent in 1954-55.

Total nutrients in all mixtures consumed in the United States and Territories averaged 27.7 percent compared with 26.87 percent in 1953-54 and for all primary nutrient fertilizers 27.9 percent compared with 26.61 percent for the previous year.



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THE ECONOMIC OUTLOOK

by W. R. Allstetter and M. H. McVickar
National Plant Food Institute

There always has been and probably always will be some correlation between fertilizer usage and farm income. A drop or increase in fertilizer income is not always reflected in a proportionate increase or decrease in fertilizer usage, but the fact remains that the economics of fertilizer and the economics of farming affect each other substantially.

Unfortunately, the present economic outlook for farmers is not too bright. The Thirty-Third Annual Agricultural Outlook Conference, held under the auspices of the U. S. Department of Agriculture in Washington, D. C. last fall, painted an unhappy picture for agriculture. It was pointed out that net farm income is down 10% as compared to 1954 and about 28% as compared to 1951 (see Figure 1), but what is still more disturbing is the fact that a further decline was predicted for 1956. This is what the USDA specialists said:

"Prospective trends in farm prices and costs indicate some further decline in net income next year. Cash receipts from marketings may be down a little, with the expected reduction in costs—mostly feed—only partly offsetting."

Certainly the outlook is not too encouraging. Prospects are for a period of low farm income, so the following question naturally arises: What is going to happen to the fertilizer business?

As we have already mentioned, in the past fertilizer expenditures have fluctuated closely with farm income. This relationship, however, seems to be breaking down as shown in Figure 2, a chart developed by the Outlook Conference. The Conference summed it up this way:

"Annual purchases of agricultural chemicals also have expanded rapidly. In the case of fertilizer, the old relationship between fluctuation in gross income and fertilizer consumption no longer seems to apply. The rate of increase in fertilizer use since 1948 has continued upward even when income declined."

Glancing at Figure 2, one sees that fertilizer usage and gross income have generally moved up and down together. This close relationship between fertilizer usage and farm income existed until about 1948. Since that time, however, the relationship no longer holds. Fertilizer usage has continued to move up, while farm income has leveled off or declined."

What's in the future? A return to the old relationship between fertilizer and farm income? Let's take a look at some of the factors that may prevent this. A very important one is the fact that fertilizer is an even better buy today than it was a few years back. Fertilizer prices haven't gone up in cost anything like that of most other farm supplies. This fact is verified by the data presented in Figures 3 and 4 while compare the price indexes of fertilizers and certain other farm production items.

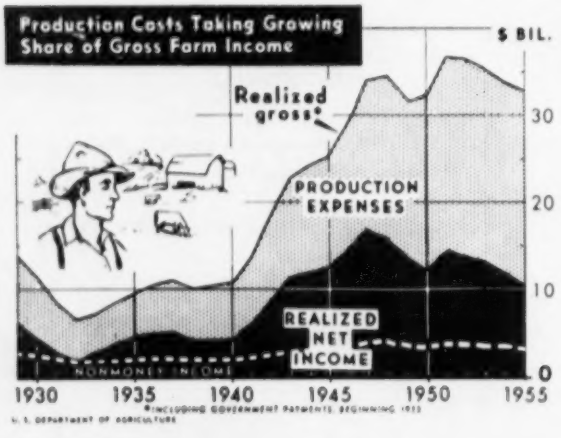
Even these charts do not reflect the true picture. In them, fertilizer consumption is expressed in terms of tons. The data do not take into account the fact that a ton of fertilizer today contains considerably more plant food than it did a few years back. Let's review the progress made by the industry in this respect.

In 1940, the average plant food content of all fertilizer sold in the United States was 20% (see Figure 5). Today, it's in the neighborhood of 27%. In other words, a bag of fertilizer today puts approximately 35% more plant food in the ground than it did in 1940.

To illustrate the economic importance of this increase in concentration, the U. S. Department of Agriculture last year furnished us with figures that showed that with a plant food content basis, fertilizer prices had increased only 13% since 1935. During the same period, the prices of all farm supplies had risen 125% —over nine times the fertilizer increase.

Here's another way to illustrate the fact that fertilizers are the farmers' best buy. It takes less farm produce today to buy an equivalent amount of plant food than it did twenty-five years ago. The comparative amounts of corn, wheat, and beef required to buy plant food equivalent to that in a ton of 2-12-6 fertilizer for the two periods are presented in Figures 6, 7, and 8. The cost of plant food has declined 18% in relation to the price of beef, 24% relative to wheat, and 17% relative to corn.

There is still another fact that may work against the old fertilizer usage: income relationship. That is the increasing awareness on the part of farmers of the economic signifi-



cance of fertilizer usage. The tremendous progress in research and education spearheaded by the land-grant colleges and the Department of Agriculture, assisted by the fertilizer industry, has brought about a fuller appreciation of the value of fertilizer in terms of farm profits.

There is a growing realization that in times of low farm prices fertilizer is of more critical importance than in times of favorable farm prices. A couple of years ago, in cooperation with the Ohio State University, we worked out some typical fertilizer response and cost-profit figures for

FOR FERTILIZER

a farm with one-third of the cropland in corn, one-third in wheat, and one-third in hay. It was no surprise that these research data showed that a farmer could reasonably expect substantial increases in the yield of all three crops by raising the fertilizer level toward the recommended rates. In the case of corn, experiments show that yields would be pushed up from 45 to 76.5 bushels per acre; wheat from 18 to 32 bushels per acre; and hay from 1 ton to 2.8 tons per acre (see Figure 9).

Dollars-and-cents data, as presented in Figure 10, show that with good farm prices net income would move up more than in proportion, from $20.25 at the low fertilizer rate for 3 acres—one acre in each of the three crops (corn, wheat, and hay)—to $88.90 when the recommended amounts of fertilizer were applied. That is a very good return. The calculations were made on the basis of corn at $1.50 a bushel, wheat at $1.75 a bushel, and hay at $18 a ton.

A farmer and perhaps even an economist would be tempted to say, "That's all right in good times, but when prices go off, it's wise to cut down on fertilizer expenditures." Nothing could be further from the truth. The fact of the matter is that at low prices, say corn at $1.00 a bushel, wheat at $1.25 a bushel, and hay at $10 a ton, a typical Ohio farmer would by necessity have to use fertilizer to keep from losing money (see Figure 10). At the low fertilizer rate with low farm prices, the farmer would lose $19.25 on 3 acres. Likewise, at average fertilization rates, he would still lose $11.16 on 3 acres. At the heavier, recommended rates of fertilization, he would "keep his head above water" and make a profit of $12.25 on 3 acres.

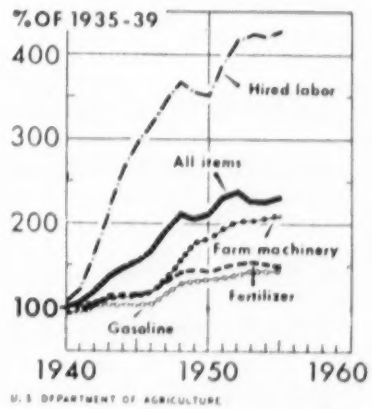
Many examples could be given to illustrate the importance of producing efficiently during periods of low prices. One such example is shown in Figure 11. It was prepared by the Ohio Bankers Association and shows costs and profits from 3 levels of fertilizer usage on a typical corn field in Ohio. Calculations are based on two different corn prices; namely, $1.50 and $1.00 a bushel. Column 7 compares the profits derived from an acre of corn at $1.00 per bushel with an acre of $1.50 per bushel corn. With corn bringing in $1.50 a bushel, profits would vary from $19.50 per acre to $52.60, depending on how much fertilizer was used, but with corn bringing only $1.00 per bushel, this farm wouldn't "make a dime" on unfertilized corn. With $10.45 worth of fertilizer, profits might reasonably be expected to reach $9.55 an acre. With $20.90 worth of fertilizer, a profit of $15.10 might result.

The above figures do not include income the farmer would receive from his labor and investment. If these were taken into account, it seems probable that with adequate fertilizer usage, an average Ohio farmer could scratch together enough income to keep on operating even at the indicated lower farm prices.

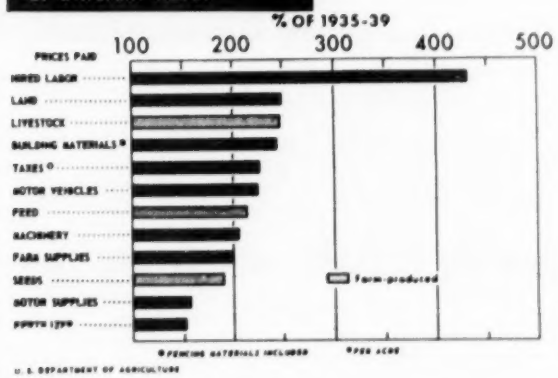
The same situation would undoubtedly apply over much of the country. Of course, farmers will not live well when crop prices are low, and none of us wants to see our farm friends in such a fix. The fact remains, however, that by using good farming practices, including recommended amounts of fertilizer, farmers would at least improve their chances of staying out of the red. Of course, it is theoretically possible for crop prices to drop so far that fertilizer usage would no longer be profitable. But such disasterously low prices don't appear to be in the offing for any of our major crops.

In any such discussion as this someone quickly asks what we

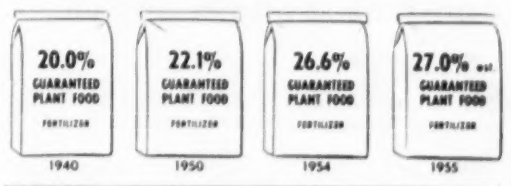
PRICES PAID BY FARMERS



All Costs Have Risen, but at Different Rates

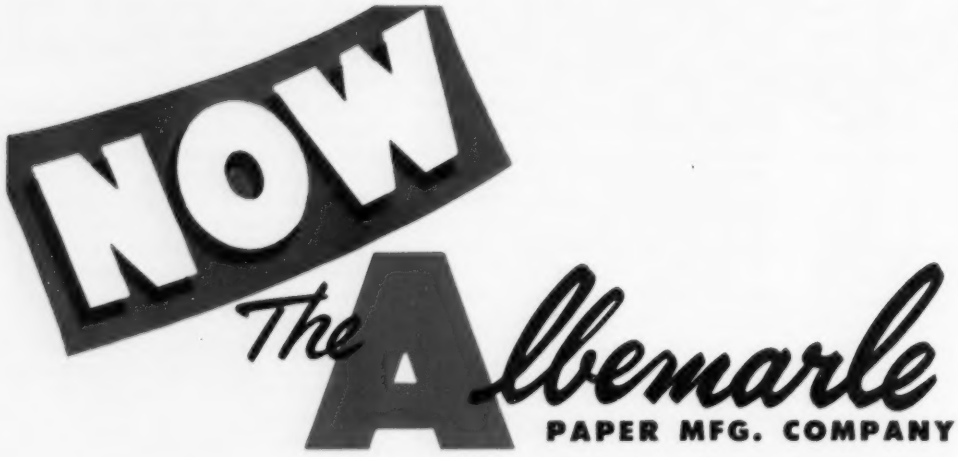


PLANT FOOD CONTENT of fertilizer continues to increase, grade ratios have leveled off



RATIOS
1940 – 1.0 - 2.2 - 1.0
1950 – 1.0 - 2.0 - 1.1
1954 – 1.0 - 1.1 - 0.9
1955 – 1.0 - 1.0 - 0.8

PREPARED BY NATIONAL PLANT FOOD INSTITUTE



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its unlimited supply of a wide variety of papers for the prompt production and delivery of Multiwall Paper Shipping Sacks.

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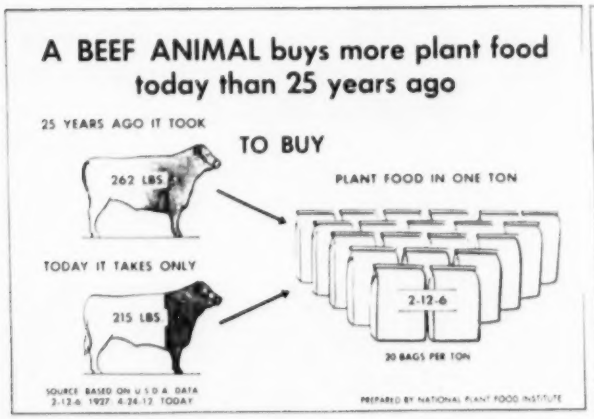
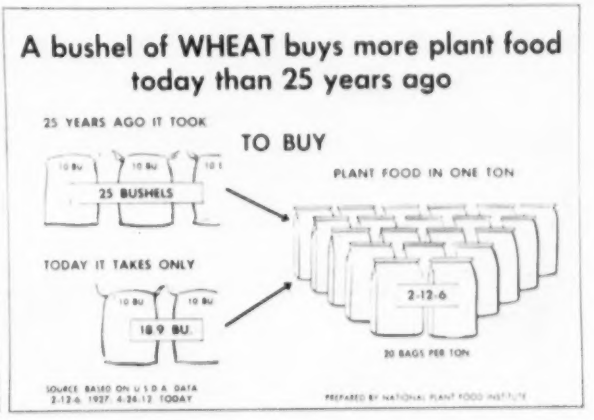
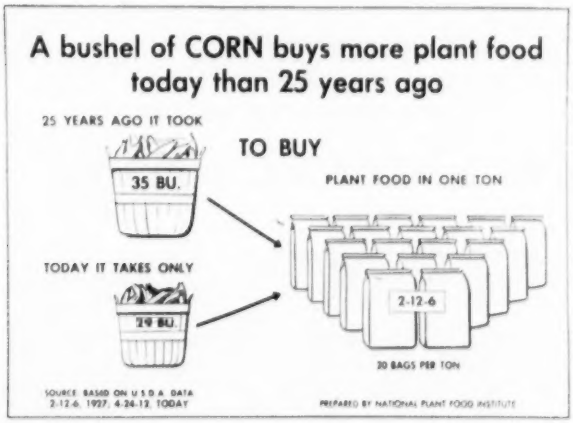
BAG CORPORATION, Middletown, Ohio


A BEEF ANIMAL buys more plant food today than 25 years ago
25 YEARS AGO IT TOOK
TO BUY
262 LBS.
PLANT FOOD IN ONE TON
TODAY IT TAKES ONLY
215 LBS.
2-12-6
20 BAGS PER TON
SOURCE BASED ON U.S.D.A. DATA 2-12-6 1927, 4-24-12 TODAY
PREPARED BY NATIONAL PLANT FOOD INSTITUTE


A bushel of WHEAT buys more plant food today than 25 years ago
25 YEARS AGO IT TOOK
TO BUY
25 BUSHELS
PLANT FOOD IN ONE TON
TODAY IT TAKES ONLY
18.9 BU.
2-12-6
20 BAGS PER TON
SOURCE BASED ON U.S.D.A. DATA 2-12-6 1927, 4-24-12 TODAY
PREPARED BY NATIONAL PLANT FOOD INSTITUTE

would do with all the crops if farmers stepped up yields by more fully putting into practice college recommendations? They reason that with surpluses already on our hands, such a move would only contribute still more to our surplus problem. A close scrutiny shows that this is not necessarily the case. By raising acre yields, the cost of producing a bushel, a pound, or a ton of farm commodities is reduced. For example, on the average it costs about a dollar to produce a bushel of corn using present management practices but less than 80¢ to raise a bushel of corn following recommended practices. It is evident that corn produced at a cost of 80¢ per bushel returns a greater profit per bushel than corn costing a dollar a bushel to raise.


A bushel of CORN buys more plant food today than 25 years ago
25 YEARS AGO IT TOOK
TO BUY
35 BU.
PLANT FOOD IN ONE TON
TODAY IT TAKES ONLY
29 BU.
2-12-6
20 BAGS PER TON
SOURCE BASED ON U.S.D.A. DATA 2-12-6 1927, 4-24-12 TODAY
PREPARED BY NATIONAL PLANT FOOD INSTITUTE

FERTILIZER RESPONSE ON 3-YEAR ROTATION IN OHIO

(YIELDS PER ACRE)

	CORN	WHEAT	HAY
Low fertilizer rate 100 lbs. on corn 150 lbs. on wheat	45 bu.	18 bu.	1 ton
Average fertilizer rate 228 lbs. on corn 244 lbs. on wheat 55 lbs. on hay	51.3 bu.	21.7 bu.	1.5 tons
Recommended fertilizer rate 700 lbs. on corn 550 lbs. on wheat 250 lbs. on hay	76.5 bu.	32.0 bu.	2.8 tons

Prepared by National Plant Food Institute
Ohio State University cooperating

The following two examples are typical. The Arkansas Agricultural Experiment Station has prepared figures on cotton production showing that with proper fertilization and the resulting lower unit cost of production, Arkansas farmers could obtain as much profit from 915,000 bales of cotton efficiently grown as they now obtain from 1,789,000 bales. The estimated net profit in each

FINANCIAL RETURNS FROM FERTILIZER APPLICATION IN A ROTATION IN OHIO

(Cost and Yields are from 3 Acres, One Each in Corn, Wheat and Hay)

Fertilizer Cost	Total Production and Harvesting Costs	Yield in Dollars	Net Profit
$ 6.75	$ 96.75	$117.00*	$20.25
		77.50**	- 19.25
14.59	104.59	141.93*	37.34
		93.43**	- 11.16
42.25	132.25	221.15*	88.90
		144.50**	12.25

*Corn @ $1.50 per bushel, Wheat @ $1.75 per bushel, Hay @ $18.00 per ton
**Corn @ $1.00 per bushel, Wheat @ $1.25 per bushel, Hay @ $10.00 per ton
Source: Ohio State University

PREPARED BY NATIONAL PLANT FOOD INSTITUTE

PROPER FERTILIZER USE CUTS CORN PRODUCTION COSTS IN OHIO

Fertilizer Cost Per A.	Fixed Cost Per A.	Total Cost Per A.	Yield Per A.	Production Cost Per Bu.	Value of Crop	Profit Per Acre
$ .0	$39.00	$39.00	39	$1.00	$58.50*	$19.50
					39.00**	.0
10.45	39.00	49.45	59	.84	88.50*	39.05
					59.00**	9.55
20.90	39.00	59.90	75	.80	112.50*	52.60
					75.00**	15.10

*Corn @ $1.50 per bushel
**Corn @ $1.00 per bushel
Source: Ohio Bankers Association — Dec. 1955

PREPARED BY NATIONAL PLANT FOOD INSTITUTE

Claude Bell (above) is president and general manager of the company, He has been connected with the fertilizer industry for 30 years.

Because of its location in Columbia, Alabama, this plant of the Bell Fertilizer Company has a trade area which extends into three states: S. E. Alabama, S. W. Georgia and N. W. Florida. This plant, which was established January 1, 1954, was long in the planning stage and is well laid out. The company produces Bell Fertilizers.

Bell Fertilizer Company

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Here is some of the modern equipment used by Spencer to produce SPENSOL Nitrogen Solutions for some of America's leading fertilizer mixers.

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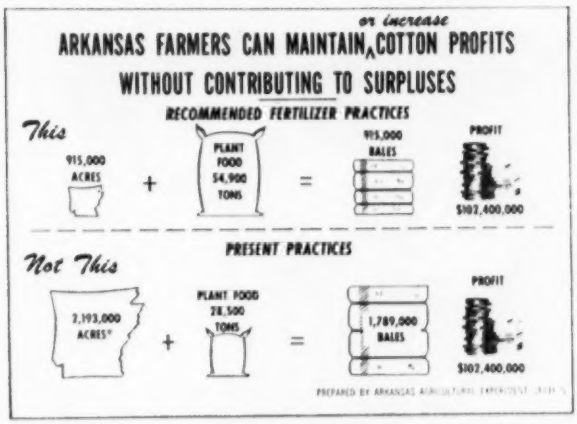
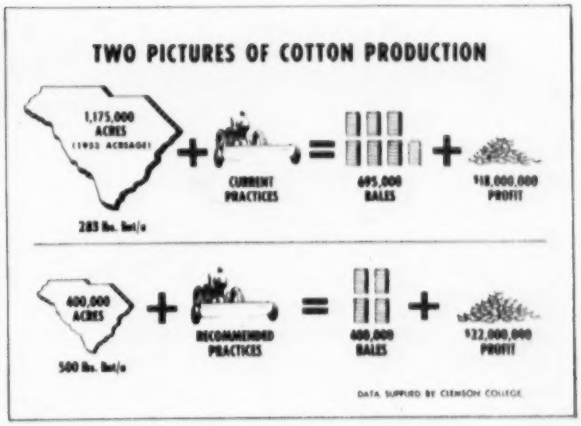




Clemson Agricultural College has prepared similar figures showing that by applying recommended practices to cotton, including proper fertilization, farmers in that state could actually step up their profits from $18,000,000 to $22,000,000 while at the same time reducing production. They would produce only 400,000 bales efficiently grown on 400,000 acres as contrasted to 695,000 bales currently being grown on 1,175,000 acres with average practices (see Figure 13). Currently, the average South Carolina farmer is making approximately $15 per acre. By efficient farming, he could step up his profits per acre to more than three times this figure.

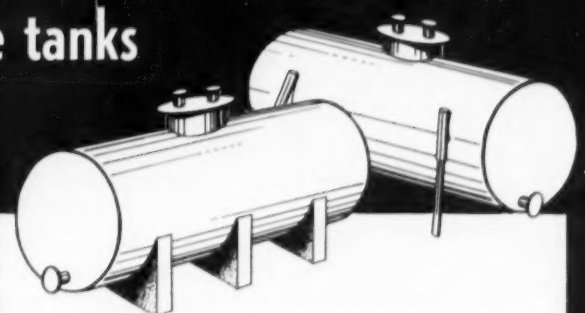
case would be approximately $100,000,000 (see Figure 12).

These calculations of more profit and less production are based on the hypothesis that all farmers in the state follow recommended practices. This is an ideal picture and one which will not be reached overnight. Nevertheless, it can be approached, and as it is approached, the farm problem is lessened.

However, it is sometimes seriously suggested that the way to conquer surplus problems is to cut down on fertilizer usage. Without question such a course would cut production. But it is nonsensical to suggest that farm problems should be solved by reducing efficiency. A more realistic approach is to encourage more efficient production so that the farmer can make more money per bushel, pound, bale, or ton of whatever he produces. If he receives a higher profit from each unit he produces, then it stands to reason that he can maintain or increase his income even though he produces fewer total units.

No great wisdom is required to see that the well-being of the fertilizer industry will be in considerable measure, dependent on how well the economics of fertilizer usage are presented to farmers, credit agencies, and others who serve the farmer.

Delivery in less than 30 days on these low-cost, dual-purpose tanks



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CF Staff–Compiled TONNAGE REPORTS

FERTILIZER TONNAGE REPORT (in equivalent short tons) Compiled by COMMERCIAL FERTILIZER Staff

	December		November		October	July-Aug.-Sept.	Quarter	January thru June		July thru December		Year (July-June)	
State	1955	1954	1955	1954	1955	1955	1954	1955	1954	1954	1953	1954-55	1953-54
Alabama	15,409	20,456	37,576	68,326	52,339	61,996	77,244	844,071	924,968	267,041	147,702	1,114,238	1,074,892
Arkansas		10,951[1]	5,836	9,583	13,716	33,562	22,882	270,894	313,787	59,887	52,438	330,776	366,225
Georgia	64,682	63,977	70,201	61,457	35,346	80,739	63,391	1,047,875	1,147,157	225,083	218,027	1,273,445	1,361,254
Kentucky		16,541[1]	8,287	9,395	34,965	33,388	35,778	433,102	489,024	91,386	88,905	524,488	577,929
Louisiana	7,415	11,599	14,062	16,780	15,019	22,849	25,153	1,047,875	250,747	78,067	74,471	310,848	325,218
Missouri	46,863	20,816	30,272	15,836	115,485	164,002	147,678	394,979	500,020	268,257	256,427	682,690	756,457
N. Carolina	53,152	64,846	35,352	47,294	74,504	62,174	71,387	1,566,158	1,558,472	264,475	257,100	1,830,633	1,815,572
Oklahoma	1,700	2,211	3,876	4,080	23,619	40,347	30,201	63,799	72,809	58,406	71,558	122,305	144,367
S. Carolina	24,259	30,613	26,346	35,789	27,987	52,710	40,477	791,206	752,639	132,604	183,919	928,715	936,558
Tennessee	6,267	7,262	40,044	54,382	31,494	59,120	52,612	282,462	405,756	167,383	107,544	523,349	523,303
Texas	23,630	27,952	30,227	34,142	58,596	76,141	63,080	371,587	374,309	212,885	186,097	584,269	560,381
California	(reports submitted quarterly)					173,411	141,875	603,857	513,300	318,270	317,270	922,127	830,327
Virginia	(reports submitted quarterly)					71,064	77,959	636,585	620,261	159,185	160,715	795,770	780,931
Indiana	(reports submitted semi-annually)							873,966	896,104	284,994	283,987	1,158,960	1,180,091
New Jersey	(reports submitted semi-annually)								231,686[1]	53,830	57,923		289,614[1]
Washington	(reports submitted semi-annually)							124,186	101,779	58,162[1]	*	182,348[1]	*
TOTAL	243,377	249,732	302,079	357,064	483,070	931,503	849,717	8,537,508	8,921,132	2,641,753	2,464,088	11,102,613	11,233,505

(not yet reported) * Not compiled [1] Omitted from column total to allow comparison with same period of current year.

MARKETS

ORGANICS: Demand for organics for fertilizer use is good and the producers of Nitrogenous Tankage continue in a well sold position. However, spot material probably could be obtained if needed. Sewage Sludge is in tight supply and price is nominal at $2.95 per unit of Ammonia and 50¢ per unit of APA, bulk, to $3.00 per unit of Nitrogen and 40¢ per unit of APA, bulk, f.o.b. shipping point, depending on the production.

CASTOR POMACE: Sales have been reported recently against limited supplies at $40.00 per ton in bags, f.o.b. Northeastern production points for prompt and February shipment.

DRIED BLOOD: Unground Blood, in bags, is indicated around $5.00 per unit of Ammonia, f.o.b. Chicago and New York area.

POTASH: Movement is beginning to pick up as the season progresses and no change in price is indicated.

GROUND COTTON BUR ASH: Demand continues excellent for this source of Potash which is primarily in the form of Carbonate of Potash. Supplies are available for shipment prompt through June. Current analyses vary from 38% to 42% K_2O which makes for a delivered cost approximately that of Domestic Sulphate of Potash.

PHOSPHATE ROCK: As of January 1st, price increases of approximately 6¢ per ton were initiated and current prices are based on fuel oil at $2.47 per barrel and labor at $1.39 per hour. Demand is picking up probably due to increased demand for Triple Superphosphate.

SUPERPHOSPHATE: Stocks of Superphosphate are heavy preparatory to strong demand expected over the next several months. Some producers report a heavy sold position for the entire season.

NITRATE OF SODA: Some movement is current with the tempo expected to increase over the next several months. No change in prices is indicated and stocks continue to be built up in anticipation of the spring demand.

SULPHATE OF AMMONIA: Coke oven supplies are in long position and it is hoped that the forthcoming Korean bids will tend to reduce stocks. Expected spring demand will also work towards this end.

GENERAL: In the Southeast and in many other areas movement of mixed fertilizer is behind schedule due to various factors such as weather, economic conditions with farmers, etc. Fertilizer manufacturers are carrying fairly heavy inventories at present but expect to move these out as the demand materializes. This demand is expected in the next few weeks.

DOANE SERVICE ESTABLISHES FARM FAMILY PANEL

Creation of the first comprehensive nationally balanced panel of farm families to provide practical and prompt answers for marketing questions of American business was announced by Doane Agricultural Service, Inc., at its national headquarters in St. Louis. The company's copyrighted name for its new market research service is Doane Countrywide Farm Panels.

Doane, one of the nation's oldest authoritative advisory firms in the field of agricultural research, disclosed that the panel of 2,000 farm families received its first questionnaire on January 13. The survey is being made for a major farm equipment manufacturer.

Approximately three weeks later, the answers were tabulated mechanically from punched cards to provide the national sample for the client. Doane expects its panel to provide speedy and accurate answers to vital marketing questions on: "What does the American farmer want? What does he need? What will he buy?"

Formation of the panel is an outgrowth of Doane's 36 years of intimate experience in dealing with farm marketing and management problems as the nation's pioneer agricultural service film.

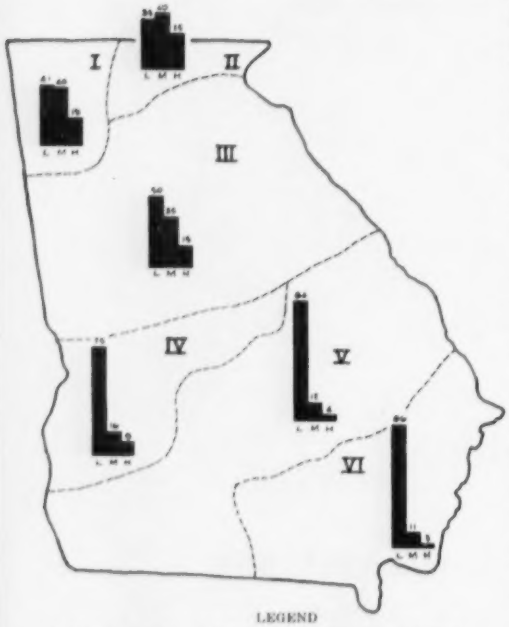
To provide a balanced national cross-section on its panel, Doane applied breakdowns obtained from advance data of the new 1954 Census of Agriculture of the Bureau of Census, not yet published. Doane will make continuing card-by-card comparisons for accuracy with the census as its panel surveys continue. In this way, the composition of the Countrywide Farm Panel will be kept accurately representative on the basis of farm population distribution, income, and other key market characteristics.

POTASH AND THE SOUTH

J. Fielding Reed, Southern Manager, American Potash Institute

The South has a long history of fertilizer use. Many of the soils of this part of the country were inherently low in plant nutrients even in the virgin state. When they were brought into cultivation, the heavy annual rainfall and sandy nature of many of the soil areas, along with the type of cropping system all resulted in a rapid decline in productivity unless commercial fertilizers were added.

Hence, fertilizer usage was a "must" years ago in the South, and grew over the years until in 1942 the National Fertilizer Association's estimates showed that the South Atlantic and South Central States consumed 6½ million of the 9½ million tons, or 65 per cent, of the fertilizer used in this country. Ten years later the same areas used approximately 50 per cent of all of the fertilizer used in the United States. Yet the usage in these states had increased from 6½ million tons to over 11 million tons. This does not tell the whole story for the plant nutrient content of fertilizers has also been on the increase, as illustrated by Figure 1 taken from North Carolina data. These figures are mentioned to show that the recognition of fertilizer needs in the South is continuing. While it is true that midwestern usage has increased greatly and thus represents a wholesome percentage of the total, the consumption in the South has doubled in ten years. It should be kept in mind that much of the same depletion type of farming is in progress in the South, and the real needs for fertilizer have not begun to be met in that area. The basic need for plant nutrients is still today greater in the South than in any other large area in the country.



LEGEND

I. Limestone Valleys and Uplands
II. Mountains
III. Piedmont Plateau
IV. Upper Coastal Plain
V. Middle Coastal Plain
VI. Lower Coastal Plain

POTASH (K_2O) LEVELS

Figure 2 Taken from a recent Georgia publication by Dr. Joel Giddens, this chart shows the levels of available potash in Georgia soils as revealed by hundreds of soil tests.

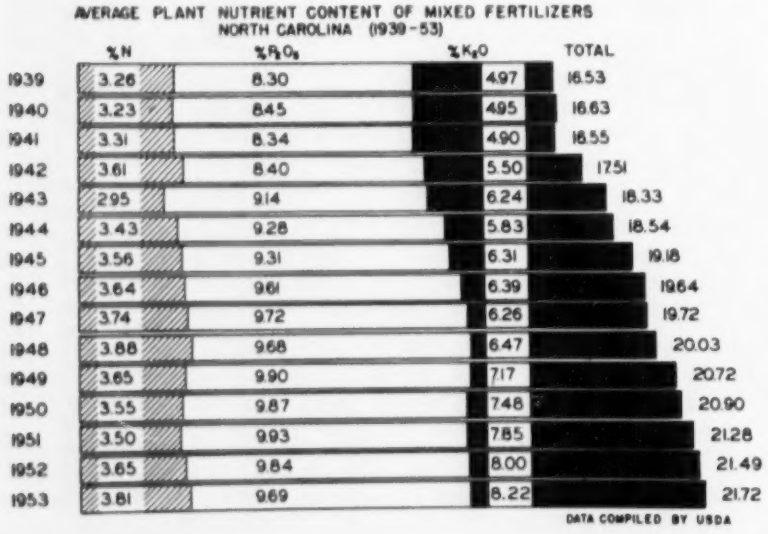


Figure 1 The plant nutrient content of fertilizer in North Carolina has shown a steady increase.

The history of potash consumption closely parallels that of all plant nutrients. In the United States in 1939 the consumption of K_2O was 380,000 tons; 220,000 tons, or 60 per cent, was used in the Southern States. In 1954, the percentage of potash used in the South represented 43 per cent of the total, but still consumption had increased from 220,000 tons to 760,000 tons K_2O. Many factors have been responsible for this increase; among which are the excellent experiment station and extension programs of the Southern Colleges of Agriculture, the wide-awake practices of the fertilizer industry, and alert, progressive farmers. This increased consumption is quite an accomplishment, yet in the South farmers are a long way from taking care of their real potash needs.

Since this section is one of our older potash using areas and has a good history of potash usage, one might ask—Where do we stand today in the South in potash consumption? Do we need more than we have been applying? Are our soils building up in potash? A study of all available data will show that the basic need for potash, like that for all plant nutrients in the Southern soils today, is probably greater than in any other section of this country. On many Southern soils inherently low in potash, we are still farming on a depletion basis.

Levels of Available Potash in Southern Soils

Soil testing services have become very widely used over the country. These soil tests are used as a means of evaluating soil fertility levels, and in addition are a great help in making fertilizer recommendations. Many states have gathered together all of their recent soil tests and summarized the data. Studies of these summaries give an idea of the level of plant nutrients in the soils over the state. Two recent examples of this are shown in Figures 2 and 3. Figure 2 is from a Georgia publication. For years Georgia has been

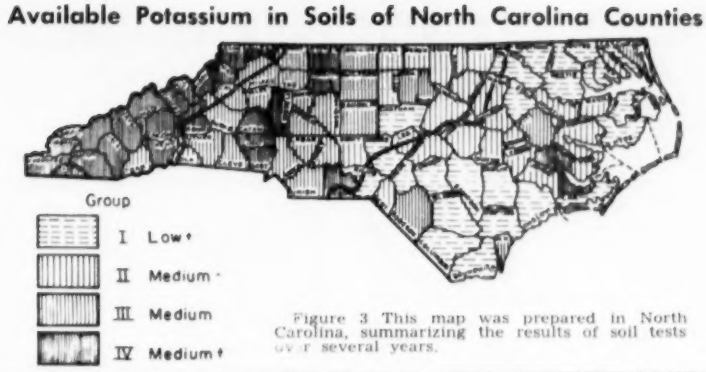


Figure 3 This map was prepared in North Carolina, summarizing the results of soil tests over several years.

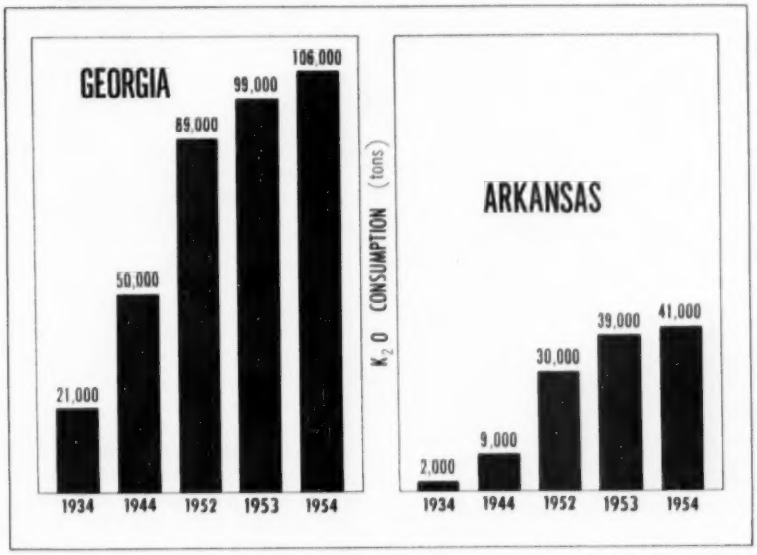


Figure 5 Potash consumption continues to increase in the South. Georgia is a state with a long history of relatively high use. Arkansas is a more recent user.

among the first four states in the nation in potash consumption. Despite this, the soil potash levels were so low to begin with, and the crop needs have been so great that we still have a potash shortage in the soils of a great part of the state.

Figure 3 from North Carolina brings out another manner of presenting data from soil analysis summaries. For years North Carolina led all states in potash usage. Potash has been essential in the agricultural program of the state, and has resulted in more efficient production and greater farm income. At the same time this increased production, with its greater crop removal, when considered together with the naturally low plant nutrient level of many soil areas in the state, leaves North Carolina still as a state with low potash levels in many soils.

These two illustrations are typical of most Southeastern States. Other states, such as Mississippi, Arkansas, and Alabama, have worked up similar data from summarizing soil tests and the picture is somewhat the same. It is evident from soil tests that many soils of the South are still quite low in potash.

Deficiency Symptoms

One of the oldest means of recognizing need for potash or other plant nutrients has been the use of certain deficiency symptoms which appear when the plant receives insufficient amounts of that nutrient. Numerous books and illustrated circulars have been published showing these symptoms. Yet their prevalance in the South is obvious in almost any year. In the summers of 1954 and 1955 a trip across the South from the Mississippi River to the Atlantic Ocean would reveal literally hundreds of fields in which the plants were suffering from one plant food deficiency or another.

The summer of 1955 will result in corn yields over many Southern states that will be either new records or well above average because weather conditions were fine for corn. In spite of this, a survey of many corn fields by the author revealed that in most of them the maximum profitable yields were not being realized because they ran out of plant food. Nitrogen deficiencies were prevalent in the latter stages of growth in many fields and potash deficiency was quite common. Soil and plant tissue tests confirmed these deficiency symptoms.

The occurence of plant food deficiency symptoms, and their confirmation by plant tissue tests, add to the soil test data and emphasize the relatively low plant food status of so many of our Southern soils.

Experiment Station Recommendations

Our state experiment stations and extension services are doing an excellent job of recommendations for most efficient use of fertilizers. If farmers followed the recommendations of the Experiment Stations in the South and used the amounts of fertilizer proposed for most efficient production, the consumption of all plant nutrients would be increased considerably. This has been recognized for some years and has led to the development and publicizing of charts such as that illustrated in Figure 4, which was prepared by the N.F.A. with the Arkansas Experiment Station. This chart, for example, points out the fact that only about 26 pounds of plant food per acre are being used on cotton while 120 pounds per acre are recommended. Data cited along with it state that each pound of seed cotton produced from this extra fertilizer would cost the farmer only three cents. This is really a remarkable story and one that offers opportunities presented to very few industries.

There is no question but that potash consumption in the South

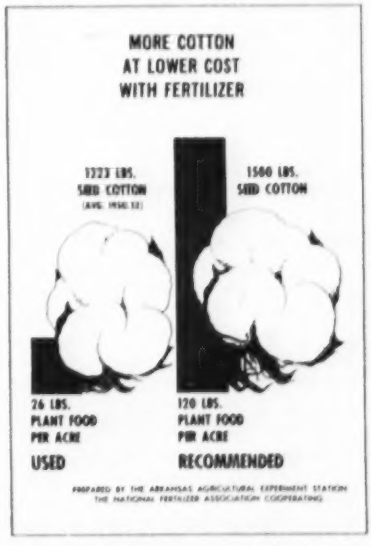


Figure 4 The N.F.A. worked with the Arkansas Experiment Stations to develop charts of this sort which point out the opportunities that lie in following Experiment Station recommendations.

would increase if Experiment Station recommendations were followed. Rough estimates in two states that use lots of potash, Georgia and North Carolina, indicate that potash consumption in these states would more than double if farmers applied what the experiment station workers suggest as a profitable application.

Potash Consumption

The increasing potash consumption in Southern States is obvious, if one examines the records. We may take a state with a long history of consumption like Georgia or one of more recent history such as Arkansas. The trends in these states are shown in Figure 5. Now from this and similar data from other states we might project the question "What will be the future potash consumption in the South?" "Will it continue to go up?" "Will it keep us with midwest usage?" Obviously the answer to this is complex.

It is evident from the above discussion that: (1) The levels of available potash in many soils of the South are well below that desirable for best crop production. (2) Experiment Station recommendations call for larger amounts of potash than are being used.

In the South the need for potash as well as for other plant nutrients is established, and our real needs could extend even beyond our sights of today. Whether consumption comes up to these needs or not depends on many factors, among them the complicated problems of agricultural and world economics of today. In addition to the usual problems of surpluses, price controls, and acreage restrictions, there are those in the South of the tenancy farming system, and the big question of capital to finance the purchase of fertilizers in quantities shown to be necessary for most efficient production.

Realizing these problems, there are still opportunities for greatly increasing potash and plant food consumption in the South. The farmer is in a highly competitive business and both farmer and banker must realize the need for increased efficiency in farming. And one of the best tools for reducing unit cost is use of more plant food per acre. One of these days the South could turn from its nutrient-depletion type of farming toward a program designed to build soil fertility and then maintain it. This philosophy is already expounded in some midwestern states. When this day arrives, the potash and other plant nutrient requirements, to meet these optimum levels, will be tremendous.

THE CHANGING FARM PICTURE

Quotes from a talk by W. H. Garman, Chief, Agronomic Relations, National Plant Food Institute, Washington, D. C., before the Fourth Annual Fertilizer Conference, Colorado A & M College, Fort Collins, Colorado, January 9, 1956.

U. S. Department of Agriculture figures show that farm prices in 1955 averaged 5 percent below those of 1954, and that retail food prices declined by 2 percent. At the present time the farmer is getting only 39¢ out of the food dollar, compared with 53¢ in 1945, a decline of more than 25 percent. The farm value of beef dropped approximately 21 percent (from 47.9¢ a pound to 37.8¢) in the last year, while the marketing margin increased by 27 percent (from 22.1¢ to 28.2¢ a pound). In terms of parity prices averaged 85 percent in 1955 compared with 89 percent in 1954, and the record high of 123 percent in 1946. Net farm income was $10.6 billion in 1955, a drop of $1.2 billion from 1954. The record high was $16.8 billion in 1947.

Changes in Fertilizer Purchases

When carryover stocks of farm commodities threaten to continue being burdensome, why fertilize crops at all? Surprising as it may seem, some people argue to that affect. But, you and I know that to make money the farmer must utilize efficent production practices, including ever more adequate fertilization. That farmers, too, know this is evidenced by the fact that today they are spending more money for fertilizer in relation to their income than ever has been true in the past.

Figures released recently by the U. S. Department of Agriculture show that farmers spent 51 percent more for fertilizer and lime in 1954 than they averaged in 1947-49, whereas their expenditures for all production goods and services increased only 16 percent.

In spite of fine progress, farmers in general still have a long way to go before they are fertilizing according to the needs of their soils and crops. But progress is being made in all states. Today most farmers just cannot help but see that fertilizer is one of the major production factors available to minimize the cost-price squeeze.

The immediate job at hand for both research and extension is to help farmers adjust production to the market, while maintaining net farm income.

The task of maintaining farm income while reducing acreages in principal crops is not an easy one. To solve this problem means that fewer acres on each farm will have to be farmed, and at the same time those acres will have to return at least as much income as the farmer now enjoys.

Changes in Size of Farms

A factor of great importance in the changing agricultural situation is to be found in the increase in size of our farms. Just in the last four years the average size of farms in the United States has increased approximately 27 acres. Farms today average 104 acres larger than in 1910. Since 1950 the total number of farms in the United States has decreased from 5.4 million to 4.8 million, the average size of which is 242.2 acres.

In the past 30 years, the number of farms of over 1,000 acres in size has doubled, from 63,328 in 1925 to 130,463 at the present time.

What Changes for 1956 and 1957?

Recently I have heard several noted economists predict that our national economy will likely remain at or near to the current all-time high level for at least the next two or three years. But during this time what is going to happen to farm income? The same experts take more or less of a pessimistic view on this particular point. They can see farm production costs rising just a little, and thus find little hope for improvement in the amount of money that will remain in the pockets of our farmers. This means that if our farmers are to live as well as they are accustomed to living, they will have to produce ever more and more efficiently. In fact, more efficient farming is their only hope for maintaining or improving their standard of living under present circumstances.

With respect to crop yields one can say the nation-wide prospects for 1956 are rather favorable as of this time. Perhaps 1956 will be our biggest crop and livestock year on record. It could well be, just as 1955 exceeded the best we had ever done before, and did so in spite of severe acreage cutbacks.

What Can We Do?

The progressive farmer of today is well aware of the fact that if he is to be progressive tomorrow, he must follow more and more strictly the recommendations of his land-grant college, including ways and means of cutting production expenses. This will be especially true in 1956 and 1957, if we can believe the predictions of the experts to the effect that total farm income will likely continue to decline slowly.

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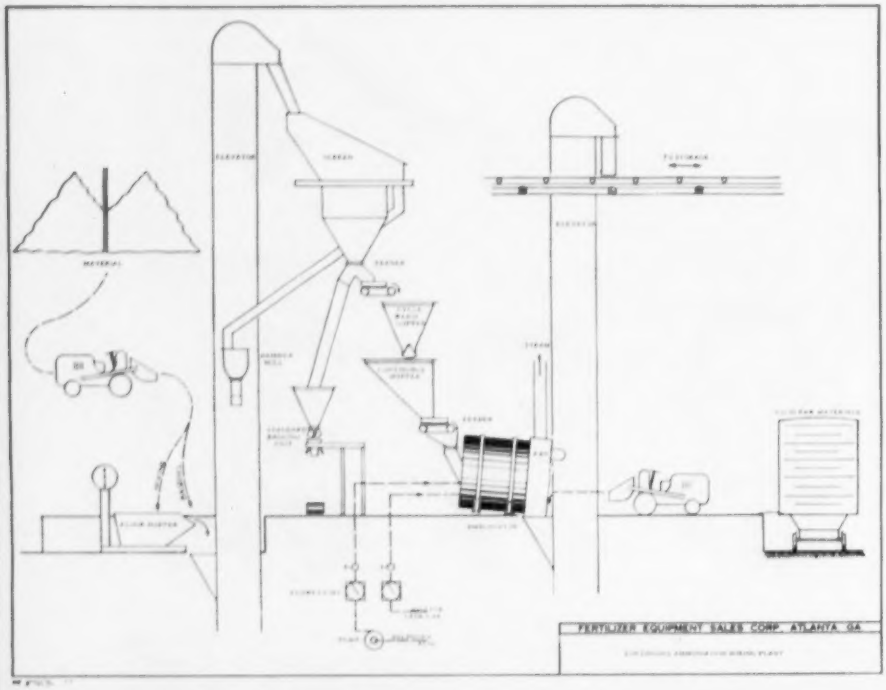
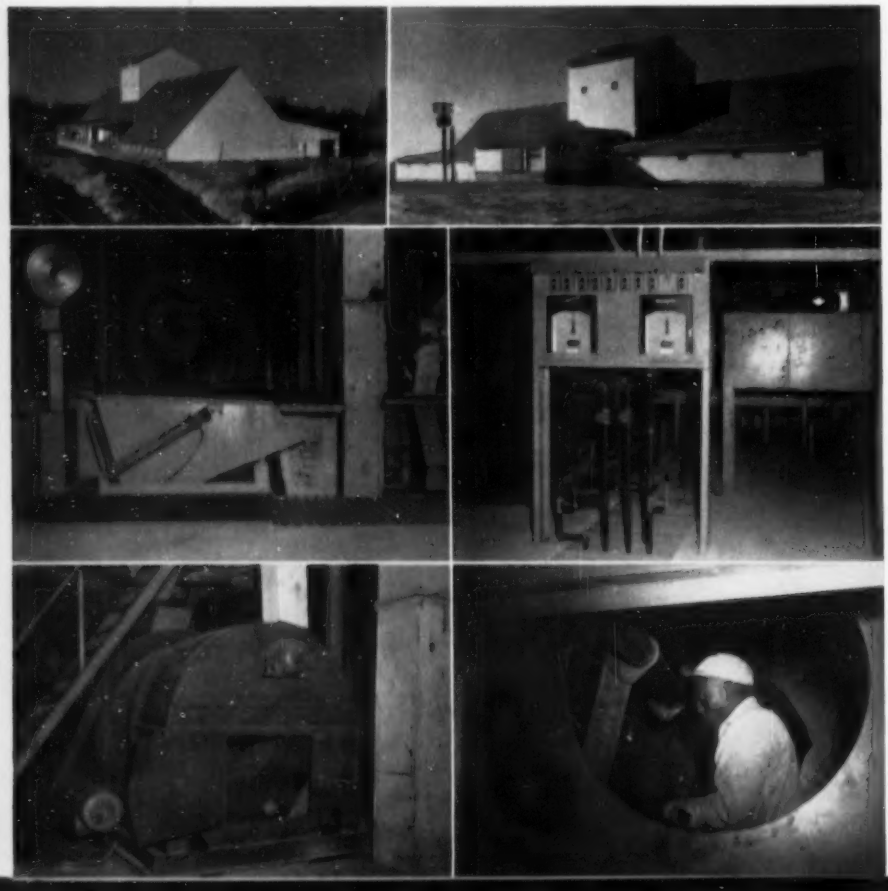
VALLEY'S NEW PLANT HAS A 4000-TON BREAK-EVEN POINT





Robert M. Harding, president of Valley Fertilizer Company, has announced completion of the company's new plant at Greenville, Mississippi. Located on State Highway 1 north of the city, the new facility is readily accessible to trucks from all directions, and is served by Illinois Central Railway.

The wooden building is of conventional "A" frame design, 85 by 240 feet, and features better than 5000 tons storage. Bookshelf bin walls separate the various raw materials and mixed goods storage areas.

Solid raw materials are unloaded by tractor shovel and elevated to a movable belt conveyor that carries them to storage bins.

In step with the progress of the Delta country it serves, the plant utilizes latest developments in its continuous ammoniation process. Designed to operate with lowest-cost raw materials and minimum labor requirements, the system includes provisions for convenient addition of granulation equipment at a later date.

Break-even production of the installation is about 4000 annual tons, allowing six dollars a ton for trucking cost and/or price reduction, and applying entire overhead expense to mixed goods. All labor is considered to be employed on a twelve-month basis.

Only three men are needed during the mixing operation, due to the simplicity of design. Two of these men operate tractor shovels, weighing the solid raw materials into a hopper resting on a platform scale. This solid material is screened, then converted to a continuous flow through a FESCO automatic batch-continuous feed system. Solids are thus fed into the TVA type continuous ammoniator. The third man assists the tractor shovel operators and controls the floor hopper.

Sulfuric acid, stored in an 80,000-gallon tank, is pumped to the mixer by a LaBour centrifugal pump. Nitrogen solution is used directly from the tank car. Both these liquid ingredients are accurately metered through Fischer & Porter recording flowrators, manually adjusted to the proper flow.

KEY TO PICTURES

Upper left: View of plant from atop rail car, showing rail dock. **Upper right:** Opposite side of plant. **Left center:** Floor weigh-hopper, discharging into elevator grate. **Right center:** Control panel. **Lower left:** Ammoniator, showing oversize door for clearing at end of run. **Lower right:** Employee (Clarence, by name) inside ammoniator gives idea of relative size of this equipment.

After reaction of solids and liquids in the ammoniator, the product is discharged into the elevator which carries it to the movable overhead conveyor belt for delivery to storage.

The mill is capable of manufacturing mixed goods at rates up to 30 tons per hour or approximately 80,000 BTU reactive heat per minute in the ammoniator. The actual rate of manufacture is adjusted so that the lowest total cost of material, labor and power can be obtained.

The plant was designed and equipped by Fertilizer Equipment Sales Corporation of Atlanta, Georgia.

ALABAMA

Ketona Chemical's plant at Ketona, near Birmingham, is due to be in production as you read this, heading for 40,000 annual tons of anhydrous ammonia. It is built over two abandoned limestone quarries, which supply an estimated billion gallons of water, required by the coke-oven gas process. Natural gas having taken a large share of the coke demand, the plant will help to rebalance the economy of that steel and coal producing area. The operation is the joint venture of **Alabama By-Products Corp.** and **Hercules Powder.** President is **P. H. Neal.**

CALIFORNIA

Shell is going ahead on schedule with the urea plant at Ventura, due in production this Fall and due to have a 100 daily ton capacity. It was designed by **M. W. Kellogg** and will use the **Montecatini** process.

* * *

Pacific Coast Borax last month went into production with its open pit mine at Boron, which is the first step in an $18,000,000 program to develop the only known sodium borate deposit in the world. The program, according to **J. M. Gerstley,** president, will convert from 30 years of shaft-tunnel operations, including construction of new refining and concentrating plants. Completion is slated for 1957.

COLORADO

Cotarco Inc. and **Umbaugh Agricultural Chemical** will have their buildings at Walsenburg constructed by the community, if present plans mature. A new state law permits cities to issue anticipation warrants, and this city of 5,596 plans to issue $10,000,000 worth to build the coal-chemical and fertilizer plants involved.

Cotarco is planning to process 8,520 daily tons of coal, and will produce, among other items, 67 daily tons of sulphur. Umbaugh will make use of the Cotarco gas. They plan plants for phosphoric acid, ammonium sulfate — phosphate, anhydrous ammonia. Preliminary reports on this project were published here in November.

* * *

Minerals Processing Inc., Salida, have broken ground for a quarry which will mine an aggregate, to be marketed as Mineralag, which is reported to contain substantial percentages of 11 important agricultural minerals: calcium, magnesium, potassium, sulphates, phosphorus, free sulphur, nitrogen, boron, copper, manganese and iron. For the time being, grinding and sacking will be done at the **U. S. Soil Conditioning** plant near the quarry, but plans are laid for the new concern to build its own facilities.

FLORIDA

Escambia Bay, which currently is producing 200 tons of anhydrous ammonia daily, will be formally dedicated on February 17, David J. Stark, vice-president and plant manager, announced January 26.

Completed in record time, the giant plant, will supply an eight-state Southern market with anhydrous ammonia and ammonium nitrate fertilizers.

The general public will be invited to attend dedication ceremonies at the plant site near Milton. Invitations also are being extended to a list of Southeastern fertilizer manufacturers and dealers, agricultural leaders and others having a direct interest in the Pensacola plant and its products.

The ceremonies will attract top executives of the chemical industry and its allied fields, as well as officials of **Escambia Bay Chemical Corporation** and its parent companies.

Ground for the plant, located 20 miles east of Pensacola near Milton, Fla., on Escambia Bay, was broken April 29, 1955. Production of ammonia was begun December 28, 1955. Ammonium nitrate solutions are now being shipped from the plant by rail and truck.

Products manufactured, bearing the trade names Baysol and Ammonite, are distributed through **Ashcraft-Wilkinson Company** of Atlanta, Georgia, which maintains offices throughout the South.

The Pensacola Plant was engineered and constructed by **Chemical Construction Corporation,** New York City.

The Escambia Bay Chemical Corporation was formed late in 1954 by **United Gas Corporation, Electric Bond & Share Company** and the **National Research Corporation.** Executives of these companies will be on hand for the dedication.

* * *

International Minerals and Chemical has announced a program to double the production of the Bonnie plant near Bartow, which produces

Lion Oil Company's new liquid sulphur barge, The Nokorode, is pictured in midstream as it approaches the dock at Champagnolle Landing on the Ouachita River near El Dorado, Arkansas. The loaded barge, when pictured, was completing its first trip from the gulf coast of Louisiana.

The 240 feet by 45 feet sulphur barge is equipped with an insulated, steam-heated tank which has a capacity for 1,000 long tons of liquid sulphur. The sulphur is used as a raw material at the El Dorado chemical plant of the company, a Division of Monsanto Chemical Company.

triple superphosphate and feed grade dicalcium phosphate. $4,000,000 have been appropriated for the first step, which is to include a second sulphuric acid plant and new equipment for the neutralization and recovery of plant effluents. 500,000 annual tons is the goal of this expansion.

* * *

American Agricultural Chemical has borrowed $12,000,000, part of which is for a $1,000,000 electric furnace at Pierce and the rest for other additions and improvements and to reimburse the corporation for the funds spent on the new Humboldt, Iowa, plant.

GEORGIA

Armour Fertilizer's plant in Atlanta was threatened by fire in mid-January, but company personnel and firemen emptied two 35,000 gallon tanks on the blaze, and it was confined to the dining room and kitchen building, which was damaged considerably.

IDAHO

Stauffer Chemical Company, after nearly five years of exploration and development work, has established the existence of large mineable deposits of high grade phosphate rock on its patents near Bear Lake. Reserves in the deposits are estimated at over 5,000,000 tons of commercial grade phosphate rock and may, according to Stauffer, be doubled or even tripled if the beneficiation of lower grade secondary beds proves feasible.

The development work is being carried out for Stauffer by **San Francisco Chemical Company** in collaboration with Stauffer's geologists. The work includes a 1400 foot adit extending at mining depth to the main phosphoria bed, a 3000 foot drift along the main bed, and a 1500 foot raise from the adit and drift to surface elevation above the deposit. The adit has been completed and the entire development project should be finished by the end of the year. Total cost of the project is estimated at $400,000.

The showings point to an excellent grade of rock, free from serious faulting, which, together with proximity to rail transportation, will make for a very favorable competitive source of supply.

The Bear Lake deposit will provide a long term reserve for the requirements of Stauffer's West Coast phosphate fertilizer plants at Richmond, California, Vernon, California, and Tacoma, Washington as well as for the Garfield, Utah Plant of **Western Phosphates, Inc.,** an associated company of Stauffer.

ILLINOIS

International Minerals & Chemical sends to its stockholders, along with dividend checks, a check-size folder which, currently, illustrates the site of their new perlite properties, and makes a detailed report on the present manufacturing and marketing status of the concern. Some quotes: "Products . . . come from 30 shipping points, located as far north as Quebec, as far south as Mississippi, as far east as Maine and as far west as California."

* * *

Federal Chemical, whose warehouse and office at Rockford were reported here last month, now reveals the intention to build there a $2,000,000 plant, though a site has not yet been chosen. Home office is in Louisville, Ky.

* * *

Darling & Co., East St. Louis, are now in full production on granulated fertilizers. Their Weatherly equipment, which rates at 40 hourly tons on all analyses, was completed in 5½ months after contract was awarded to **D. M. Weatherly Company,** Atlanta. Installation was made without major plant alteration.

INDIANA

Kingsbury & Co. will have their Weatherly granulating unit in production at their Peru plant when you read this. It turns out 40 hourly tons, and was installed, without new building construction, by **D. M. Weatherly Company**, Atlanta.

IOWA

Davison Chemical have announced completion of new and improved fertilizer production facilities for their plant near Perry.

The new facilities, installed at a cost of nearly $300,000, will increase the capacity of the plant by 50 per cent and enable the production of a superior type of granulated fertilizer, with graded particle sizes free of dust. With the new equipment, there has been made possible an extension of the grades in which the fertilizer is supplied to include those of highest concentration or analysis, such as 15-15-15.

The warehouse of the plant has been extended, a new loading dock installed, and the main production building has been completely revamped, to accommodate new items of equipment, including a huge granulation unit which necessitated a major addition to the enclosed area.

Bob Fruen of Hatfield, Minn. sent us this postcard shot of his fertilizer plant, unusual in shape. Back of it are his grain elevators.

KANSAS

National Fertilizer's Kansas City plant, only recently acquired from **Kansas City Stockyards,** lost the plant and more than 500 tons of stored fertilizer to fire, which kept the firemen busy all day and all night into the next day. Some of the equipment was saved.

* * *

Dillwyn Grain and Supply, Dillwyn, its members having voted in favor of the project, will build an anhydrous ammonia installation.

LOUISIANA

Texas Co. is reported considering a 300 daily ton ammonia plant which is likely to be located in Louisiana.

* * *

Westvaco may also build a plant on the Gulf, a phosphorous operation which is likely to land at New Orleans.

MARYLAND

Davison Chemical are building near Baltimore a new laboratory, scheduled for completion this year, which will house their expanding research activities. It will be a three story building, some 52,000 square feet in total area, and will provide for a staff of 160. Present research is largely centered at the Curtis Bay Works, where process engineering research will be continued. To be transferred are research management; chemical, agricultural, catalyst and nuclear research, and new products development. Architects are **Voorhees, Walker, Smith & Smith,** building contractors are **Consolidated Engineering.**

MICHIGAN

Plant Food Services of St. Johns, have recently been incorporated for $96,000.00. Officers elected were: **Clayton Klein,** president, **Donald Ir-**

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Tennessee Corporation custom formulated mineral mixtures are tailored to fit your particular needs. We custom mix any combination of minerals to your own specifications. There is only one ingredient to add to your regular fertilizer formula to produce a completely balanced plant food. It requires no additional labor or mixing facilities, since TC mineral mixtures come to your plant in bulk or bag already mixed in controlled amounts of soluble and readily available forms of Copper, Manganese, Zinc, Iron, Magnesium and Boron. Cut down on multiple purchasing, raw material cost and handling by mineralizing with a TC custom formulated mineral mixture.

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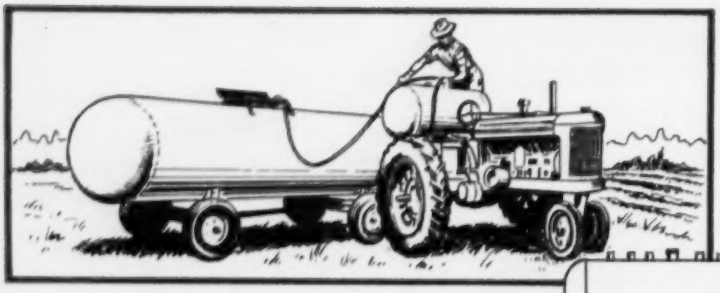

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157 Gal.	28" dia. x 70" O.A.L.	310 Gal.	37" dia. x 78" O.A.L.
200 Gal.	28" dia. x 83" O.A.L.	500 Gal.	46" dia. x 79" O.A.L.

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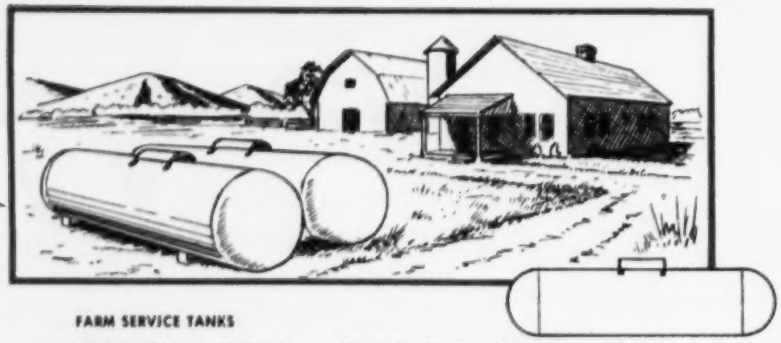
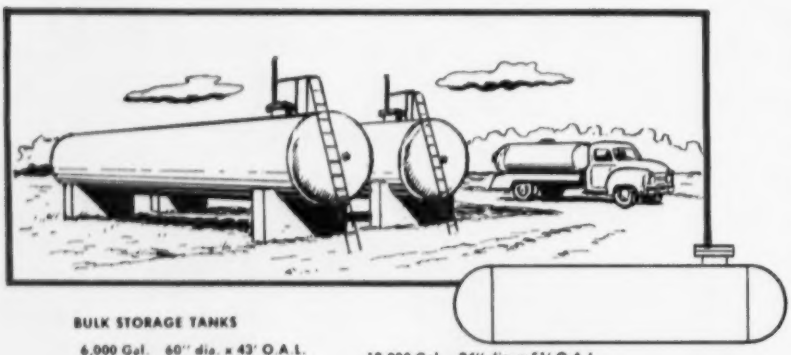


FARM SERVICE TANKS

500 Gal.	28" dia. x 196" O.A.L.	1,000 Gal.	41" dia. x 193" O.A.L.
500 Gal.	46" dia. x 79" O.A.L.	1,000 Gal.	46" dia. x 145" O.A.L.



BULK STORAGE TANKS

6,000 Gal.	60" dia. x 43' O.A.L.	18,000 Gal.	94" dia. x 51' O.A.L.
7,145 Gal.	60" dia. x 51' O.A.L.	30,000 Gal.	106" dia. x 67'-1" O.A.L. using elliptical heads.
8,000 Gal.	72" dia. x 39'-7" O.A.L.	30,000 Gal.	106" dia. x 68'-3" O.A.L. using hemispherical heads.
10,000 Gal.	72" dia. x 49' O.A.L.		
12,000 Gal.	72" dia. x 58'-1" O.A.L.		

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rer, vice-president; **Norman Irrer,** secretary-Treasurer. **Bert A. McNeilly** is the general manager. The firm plans to expand their bulk storage and handling facilities. On-the-farm storage of bulk fertilizers are anticipated, thus saving the farmers the cost of bags and bagging.

* * *

The new warehouse and expanded facilities of the **Klein Soil Service** plant at Fowlerville are nearing completion. The new bulk conveying system will be capable of increasing production from the present 6 tons to over 70 tons per hour.

MINNESOTA

B&B Liquid Fertilizer have built a liquid fertilizer operation at Springfield, which is said to be only the second such in the State.

MISSOURI

Monsanto are putting up new headquarters outside St. Louis, to supply 300,000 square feet of floor space, which is to be ready next year. They are also building a new laboratory at their Creve Coeur site, where research work is now going on in Massachusetts and Ohio will be centered.

NEBRASKA

Consumers Cooperative, Alliance, members favored the building of an anhydrous ammonia operation in a lively discussion at their recent annual meeting, and appointed a committee to study similar operations elsewhere. **Harold Newman** is the new president; **Joe Kirchner,** manager.

NORTH CAROLINA

Weil's Fertilizer Works, Goldsboro and the **Wayne Chemical Corp.** of New Bern will erect a 30,000 gallon anhydrous ammonia tank and distribution point in Goldsboro, which is to be ready by the first of next month.

TENNESSEE

Velsicol, Memphis, is already planning an addition to its plant.

* * *

Tennessee Corporation's subsidiary, Tennessee Copper Co. has bought the manufacturing facilities of Esmond Chemical Co., Rhode Island, and will move them to Copperhill.

TEXAS

Olin-Mathieson's fertilizer division is setting up a new irrigation assembly plant and warehouse in Lubbock.

First shipment of ammonium nitrate solution from the new $16,000,000 Selma, Mo. plant of Mississippi River Chemical Company, a division of Mississippi River Fuel Corp., St. Louis. New source of anhydrous ammonia, ammonium nitrate solutions and solid ammonium nitrate.

In the photo (l to r) are John L. Sanders, sales manager of Mississippi River; James W. Mathers of Bradley & Baker, St. Louis; Cecil Lashlee, plant manager, and R. G. Powell, technical service director of Mississippi River Chemical Co.

* * *

Rohm & Haas are planning to expand their Houston ammonia and methanol operation, at a cost said to be around $20,000,000.

* * *

Houston Fertilizer Association expect to complete the building of their $100,000 plant, and equipment will be installed promptly for operation as immediately afterward as possible. The plan is a cooperative enterprise of local farmers. **S. A. Farr,** former County Supervisor, is manager.

* * *

Beaumont expects to take in $4500 annually from dried sewage out of their new treatment plant, according to Superintendent **Joe Dust.**

* * *

Gulf Liquid Fertilizer Co., which has operated for several years at Wharton are now building an operation at El Campo, and will transfer several employees to the new location. **C. W. King,** general manager, will be among those moving to El Campo.

UTAH

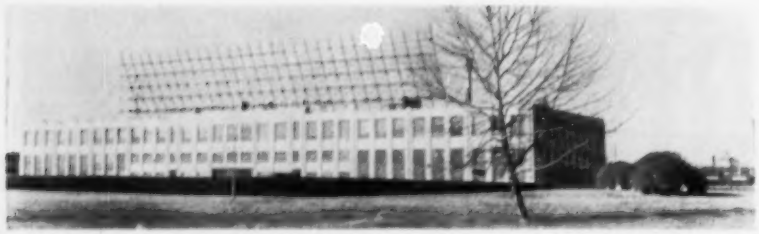
National Farmers Union, who already have under way a potash operation at Carlsbad, with **Phillips** and **Kerr-McGee** that runs into the multi-millions, are now giving serious thought to three other major units—an anhydrous ammonia plant that may cost $12,000,000 and turn out 125 daily tons; a $5,000,000 triple superphosphate and sulphuric operation to be built near their phosphate ore claims; a pelletizing plant. The ammonia operation hinges on assurance of natural gas, result of drilling to be undertaken when the snow clears away. **C. E. Huff** is manager of NFU, located at Denver.

WASHINGTON

Phillips Pacific Chemical Company has purchased a 200-acre site in the Tri-Cities area where it will begin construction this spring of an ammonia plant according to **K. S. Adams,** chairman of **Phillips Petroleum Company,** and **Ray C. Fish,** chairman of **Pacific Northwest Pipeline Company** which companies jointly own Phillips Pacific Chemical Company. The site is 7 miles southeast of Kennewick on the west bank of the Columbia River, near Finley.

The plant is scheduled for completion late in 1956. Using natural gas supplied by Pacific Northwest Pipeline as raw material, it will have a daily production capacity of 200 tons of anhydrous ammonia.

Phillips Chemical Company will operate the plant, which will be constructed by **Hydrocarbon Construction Corporation.** Architectural designs and the purchase of equipment and materials is already under way by **Fish Engineering Corp.** Marketing of the anhydrous ammonia to distributors will be handled by



This 150,000 square foot building, on a ten and one half acre lot is the new engineering development center in Newark, N. J. of The Lummus Company. They will use it primarily for pilot plant operation and process development for the petroleum and chemical industries.

Phillips Petroleum Company from sales offices in Spokane and Salt Lake City.

* * *

Columbia River Chemicals, which has been long considering a 110 daily ton plant in Washington is now said to have dropped the plans because of the **Phillips** plant at Kennewick. But the chairman of the Walla Walla Port Commission is quoted as believing the plant will still be built at Attalia, will be a $16,000,000 operation (up from the $12,000,000 originally estimated) and that a start will be made in the Spring.

* * *

Northwest Refining and Chemical will shortly have in operation a zinc oxide plant, from the by-product of which they plan to produce fertilizer ammonium sulphate. **Bernard Wilcox** is president, with Spokane headquarters.

WISCONSIN

Kickapoo Fertilizer Co., Hillsboro, has been in operation staffed by farmers who work there during the busy Winter fertilizer producing season, and on their farms in the Summer. The plant, which has been in business three years, under the management of **Donald W. Aitken,** with **"By" Baldridge** as assistant manager who joined up last year, serves a 65 mile radius, much of it bulk goods, much of which is cascaded directly into the farmer's own trucks for direct application. They call it, out there, a "chore time" plant.

BELGIUM

Union Chimique Belge are converting their Zandvoorde plant, near Ostend, to the gasification of low grade coal, instead of coke, which is often scarce, costly to transport and higher priced.

CANADA

Quebec Ammonia, having negotiated sufficient long range sales contracts will go ahead with the $8,000,000 ammonia plant at Varennes, Que. with completion scheduled for early next year. While their basic ammonia contract is with **DuPont** for use in the making of nylon intermediates and explosives, they will produce anhydrous ammonia, nitric acid and solutions for fertilizer use. The plant, which will have a capacity of 125 daily tons, has **Robert Campbell** as president.

EIRE

W & H. M. Goulding Ltd., Cork, are planning two new fertilizer plants—one in Cork and the other in Sligo. The Cork plant is to produce 50,000 annual tons of mixed goods and an equal quantity of superphosphate . . . with a second plant projected there to double this production later. The Sligo plant is to produce 20,000 annual tons of superphosphate. For this unit they will seek a State grant.

FRANCE

Potasse et Engrais Chimiques will build an ammonia plant near Le-Havre, at Grand-Couronne, which is to be in operation by next year. Financing will be accomplished by raising the company capitalization 1400 million francs.

GERMANY

Krupp will build a 5,000,000 plant at its Hanover-Hannibal Colliery to produce 42,000 annual tons of ammonia.

Hellenic Company of Chemical Products and Fertilizers, Ltd. has increased chemical fertilizer output at their Piraeus plant from 60 to 100 tons per day. A new 100 ton plant, presently producing ammonium phosphate, but designed by **Dorr-Oliver** to manufacture either triple superphosphate or ammonium phosphate, has replaced the 60 ton triple superphosphate installation designed by the same company and initially put into operation in 1934. Evidence of recent advances in technology of fertilizer plant design is the reduced floor space required by the new plant—only one-quarter to one-third that of its predecessor.

Basic raw material used at Piraeus, the port of Athens, is Gafsa phosphate rock imported from Tunisia. In the past, manufacture of phosphoric acid, ammonium phosphate and triple superphosphate from this particular rock has been unusually difficult and in some instances the rock had to be calcined prior to processing. To date, however, Oxea, as this largest chemical company in Greece is commonly called, has experienced no difficulty in handling the uncalcined rock.

Phosphoric acid is manufactured at the plant site using the Dorrco Strong Phosphoric Acid Process which consistently produces 32% P_2O_5 from sulfuric acid and phosphate rock. Following a practice originated abroad and recently introduced in the United States, separation of this acid from waste gypsum is accomplished by a traveling pan—endless belt type filter, in this instance a 12 square meter Dorr-Oliver Traveling Pan Filter. This unit was supplied by Dorr-Oliver S. p. A. in Milan—the organization by which it was originally developed, while the remainder of the equipment was imported from the United States.

Strong phosphoric acid is concentrated to 38% P_2O_5 in single effect vacuum evaporators using the Dorrco Phosphoric Evaporation Process. Product ammonium phosphate or triple superphosphate is the result of the Dorrco Granular Fertilizer Process in which concentrated acid and ammonia or additional raw rock, depending upon the desired product, are mixed and blunged with recycled product. After drying, the granules are screened to produce a closely graded intermediate fraction—the final product. Oversize is reground and recirculated with the undersize material.

INDIA

The Government in announcing a proposal to establish a fertilizer plant adjacent to the Rourkela steel works, has expressed it as policy that wherever possible ammonia synthesis plants should be associated with new steel plants.

IRAQ

The Government-owned oil refinery constructed by **Kellogg International** includes a sulphuric unit which is said to be unique. It will produce fresh acid and reclaim spent acid.

ITALY

Montecatini is planning expansion that should raise its total capacity 10%, a lot of which will be in the fertilizer units.

New, low-cost way to get information you always need
. . . in a hurry

The new *Doane Countrywide Farm Panels* ® will soon begin its continuing study of fertilizer purchases by farmers. All points listed below will include your brand of fertilizer and major competitors in each of your sales areas . . . by type of farm and crop enterprises. This will include the type of fertilizer and form of fertilizer for each crop.

- Farmers' plans for purchase of fertilizer for 1956 compared with 1955.
- Where do farmers buy fertilizer?
- Farmers' borrowing intentions for 1956 crop production; from whom?
- How does he plan to finance his 1956 fertilizer purchases (cash, credit, etc.)?
- What type of fertilizer are farmers planning to purchase (anhydrous ammonia, liquid, straight vs. mixed goods)?
- What form of fertilizer and method of application are farmers using? Bulk vs. bag . . . and custom application vs. own labor . . . what size bags do they prefer?
- Brand competition in your sales areas?
- Farmers' sources of information on buying fertilizer?
- Reasons for brand preferences?

Doane Countrywide Farm Panels ® is classified and indexed to coincide with the breakdown in the new 1954 census of agriculture.

For complete information write or phone (collect):

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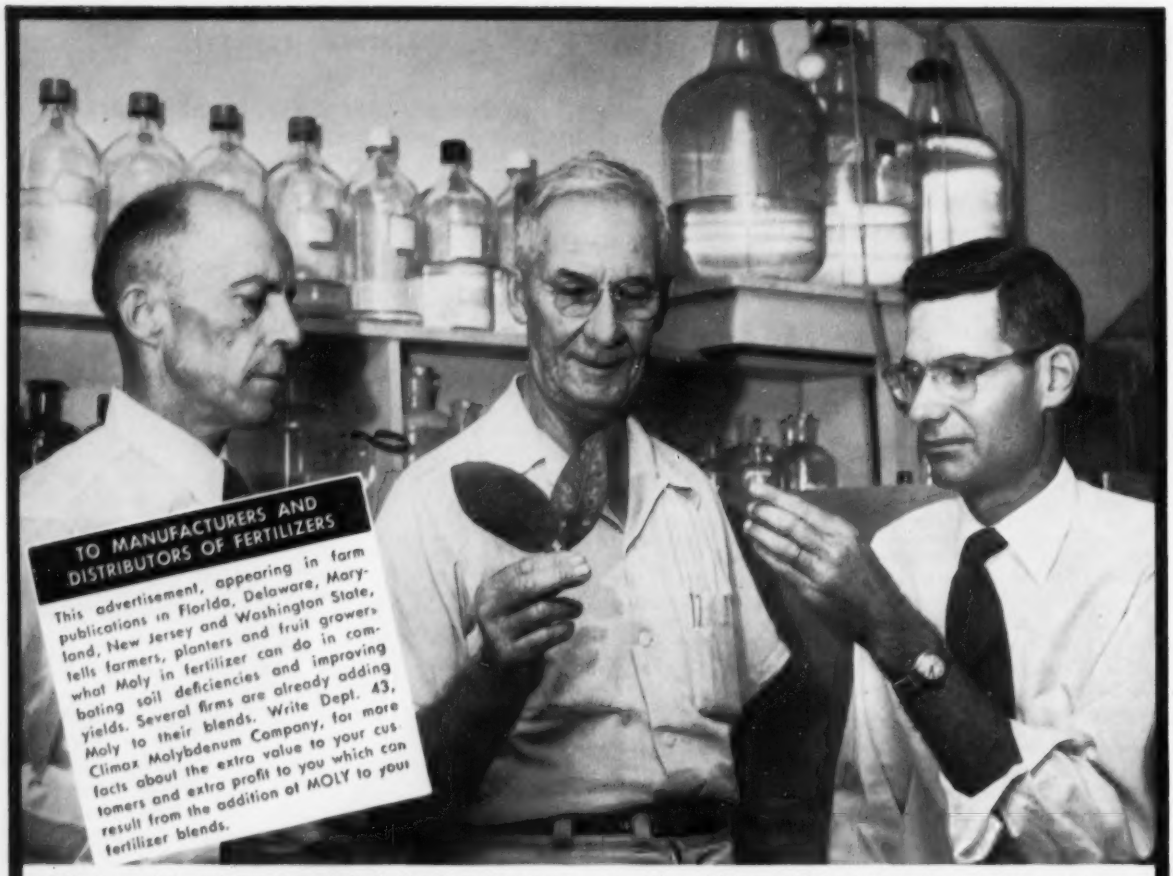
TO MANUFACTURERS AND DISTRIBUTORS OF FERTILIZERS
This advertisement, appearing in farm publications in Florida, Delaware, Maryland, New Jersey and Washington State, tells farmers, planters and fruit growers what Moly in fertilizer can do in combating soil deficiencies and improving yields. Several firms are already adding Moly to their blends. Write Dept. 43, Climax Molybdenum Company, for more facts about the extra value to your customers and extra profit to you which can result from the addition of MOLY to your fertilizer blends.

C. D. Leonard, L, and Ivan Stewart, R, Florida Citrus Experiment Station, talking with A. C. Mathias, citrus grower. Doctors Stewart and Leonard established the fact that *yellow spot* on citrus leaves is caused by molybdenum deficiency. They also showed that moly spray effects a rapid recovery of citrus trees affected by this deficiency disease. Many Florida citrus growers are now using molybdenum.

Florida experience shows how Moly controls crop disease

Water soluble Molybdenum can be spray-applied alone or mixed with other sprays.

Yellow spot on citrus leaves is caused by molybdenum deficiency, research discloses, and it can be controlled by spraying affected trees with sodium molybdate. Now Florida citrus growers are using molybdenum for the control of yellow spot.

All crops need moly—Other scientific tests conducted by experiment stations over the past 15 years have shown that moly is needed in *all* crops. If molybdenum is not present in the soil in a form *available* to plants, then it should be added. In legumes moly fixes nitrogen in root nodules. Moly acts in all crops to reduce nitrogen in the leaves. With such varied crops as tobacco, sugar beets, tomatoes, broccoli and rutabagas, added traces of moly make the difference between scanty growth and vigorous, healthy yields.

County agents can help—It may be that your own soil is deficient in available moly. Your county agent or soil conservationist will be glad to talk with you about the problem. Write for our bulletin, "Testing for Molybdenum Deficiency". Climax Molybdenum Company, Dept. 36, 500 Fifth Avenue, New York 36, N. Y.

MOLYBDENIZED FERTILIZERS
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Davison Chemical Company
Division of W. R. Grace & Co., Baltimore, Md.
The Summers Fertilizer Co., Inc. McKeesport, Pa.

CLIMAX MOLYBDENUM

Pronounce it: Mo-LIB-de-num or call it Moly

MEXICO

Guanos y Fertilizantes—a government operated concern—will be in production soon with its fifth plant. This one is in Puerto Mexico, Veracruz, cost $8,000,000, will turn out 180,000 annual tons—most of which is ammonium sulfate and nitrophosphates.

RHODESIA

African Explosives and Chemical Industries are building a $12,000,000 superphosphate plant near Salisbury, which is due to be completed in 1958.

SPAIN

Reocin mines are source of sulfide ore, raw material for the new 20,000 annual metric ton sulphur plant at Hinojeda, Santander.

"PROGRESS - - - or DIE"

Dr. Robert H. Kean, V-C's Director of Development, included this "research-eye view" of the fertilizer industry in his talk to the V-C sales-managers' meeting held recently in Richmond. We have "digested" it from "V-C News."

The impressive thing about our industry is that it is on the move the way it has never been before.

Educated guessers talk in terms of doubling its present size in the next twenty years. Growth is one thing, but the kind of growth is another. It seems very evident the the next twenty years will not merely repeat the pattern of the past twenty.

The fertilizer industry is only one segment of the larger agricultural industry and changes in areas far removed from our immediate business, may react to affect us most importantly.

Little things, new bits of knowledge—new concepts—whether it be of chemistry or biology or soil physics, are all grist to the mill of the agronomist. The research of yesterday is the commercial development of tomorrow. The result today is a fast-developing and fast-changing agricultural technology.

In an entirely different field than chemistry and soils, the steady and continuing decline of farm population has been noted. It is undoubtedly an important factor in some of the trends in our industry. Less farm labor more farm mechanization: more farm mechanization, larger farm units. And so forth. What is the relationship of these changes, say, to the increase in bulk handling and application of fertilizers? And what will they do to the relative demands for mixed goods or separate materials?

These are typical examples of what I mean when I say that fertilizer research and development has to look beyond the fertilizer industry.

The rapid advances of agricultural science mean that a farmer will more and more have to be a scientific farmer and a progressive farmer if he is going to say in business. Every day this technical revolution is widening the gap between the progressive farmer and the unprogressive one, between the big farmer and the little one, between the commercial farmer and the subsistence farmer.

Fortune magazine, just a few months ago, summed it up very well. It said:

"The efficient U. S. farmer is in fact becoming a highly-capitalized specialist, anxious and able to become still more efficient. Most U. S. city dwellers know in a general way that the hayseed stereotype of the farmer is a bit out of date; but just how heavily educated, mechanized, capitalized, and specialized U. S. farming has become, just how swiftly the technology of farming is moving, is something very few Americans have grasped."

One of my convictions is that these facts apply not only to farming, but also to other segments of the general agricultural picture as well. Our industry, willy-nilly, is caught up in this revolution and will share in its consequences. Some of us, even now, are beginning to hold on to our hats.

I am convinced that those farm elements that do not understand the nature of this revolution and do not grow and progress with it will fail and disappear. I am also convinced that fertilizer companies that do not see it and understand it, and act accordingly, will also fail and disappear.

One of the functions of Research and Development is to peer ahead and to try to understand what is going on. And then to help in preparing the appropriate moves.

I can assure you that V-C is alert and vigilant. That's my "research-eye view of things."

Pollution Cure Service Organized

Formation of Resources Research, Inc., a firm of consultants specializing in solving air and stream pollution problems for industry and Federal and state governmental agencies, was announced January 18 by Dr. Louis C. McCabe, formerly Scientist Director in the United States Public Health Service and first director of the Los Angeles Air Pollution Control District. He will be joined in the new enterprise by Frederick S. Mallette, executive secretary of the Committee on Air Pollution Controls and Research Manager of the American Society of Mechanical Engineers, and William S. McCabe, consulting geologist of Casper, Wyo.

The Company will handle research and development in geology, mining, industrial wastes, water resources, and the economics and supply of conventional and atomic fuels. It will deal with such specialized problems as fuel sources and their evaluation for power, metallurgy and chemistry; research and engineering in air and stream pollution; water treatment and supply problems; and the development of fuel resource properties.

The main office of Resources Research, Inc. will be in the Wisconsin Building, 4435 Wisconsin Avenue, N.W., Washington 16, D. C.; with offices in New York City at 55 West 42nd Street and in Casper, Wyoming care of P. O. Box 1861.

Nitrogen Division Offers Farm Tax Booklet

"How to Save Money on Your Farm Income Tax" is the title of a new booklet prepared by the J. K. Lasser Tax Institute and offered free by the Nitrogen Division of Allied Chemical & Dye Corporation.

Written in concise, everyday language, the booklet enables the farmer to grasp his tax deduction situation with a minimum of reading. Among subjects covered are: how to compute your farm income, forms to use, farmer's self employment income, declarations for farmers, and crop damage payments. Especially helpful is a section entitled "Special Tax Saving Check List for Farmers."

A free copy of "How to Save Money on Your Farm Income Tax" may be secured by writing to Nitrogen Division, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, New York.

Continued Rise In Farm Co-Op Members

Total memberships in farmer cooperatives have again showed an increase, the U. S. Department of Agriculture announced today. Statistics compiled by its Farmer Cooperative Service show a total of 7.6 million memberships in 1953-54 —up 100,000 over the preceding year.

These 7.6 million memberships represent some 3 million individual farmers out of a total of fewer than 5 million. This means that many farmers are members of more than one cooperative in the marketing, farm supply, and related services fields. Thus memberships in farmer cooperatives are increasing while the total number of farmers is decreasing.

Among other highlights in the 1953-54 farmer cooperative picture are the following: Net dollar business was good—$9.5 billion. This was about as much as in the preceding year, in spite of declining prices for many products cooperatively handled—livestock, grain, and feed, in particular. Of this net business, total farm products marketed accounted for about $7.3 billion; farm supplies purchased for patrons, nearly $2 billion; and receipts for services, $188 million.

Dairy products accounted for $2.4 billion, or about one-third the net value of all products marketed. Feed was the big item in supplies, amounting to $810 million, more than two-fifths of the total net value of supplies purchased.

Despite increased memberships, the number of cooperatives continued to fall slightly. There were 10,058 in 1953-54 compared with 10,114 the year before. Consolidations were probably responsible for most of this decline.

Farmers of the South showed a substantial gain in their use of cooperatives with 1,913 associations in 1953-54 compared with 1,890 in 1952-53. The South Atlantic and East South Central areas have increased in relative importance in number of memberships and in 1953-54 accounted for 22 percent compared with 16 percent in 1945-46.

The greataest number of memberships, however, are still centered in the North Central States. The West North Central region—comprising Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas—had almost 2.3 million memberships in 3,952 associations

Estimated number of associations, memberships, and business of marketing, farm supply, and related service cooperatives, by States, 1953-54[1]

State	Number of associations with headquarters in State	Number of members in State	Net business after adjusting for duplication[2]
			$1,000
Maine	25	23,547	37,282
New Hampshire	11	11,530	29,258
Vermont	36	25,220	72,384
Massachusetts	43	35,104	63,733
Rhode Island	5	3,333	7,020
Connecticut	29	16,988	52,136
New England	149	115,722	261,813
New York	396	160,367	449,940
New Jersey	64	37,509	136,538
Pennsylvania	185	171,188	298,110
Middle Atlantic	645	369,064	884,588
Ohio	303	380,292	556,864
Indiana	151	418,396	375,987
Illinois	555	594,507	651,925
Michigan	239	208,977	289,107
Wisconsin	843	412,094	596,951
East North Central	2,091	2,014,266	2,470,834
Minnesota	1,312	575,095	632,215
Iowa	723	422,630	524,221
Missouri	279	454,306	296,266
North Dakota	548	247,698	214,635
South Dakota	322	155,183	148,968
Nebraska	414	244,275	265,813
Kansas	354	178,283	264,551
West North Central	3,952	2,277,470	2,346,669
Delaware	15	18,016	20,150
Maryland	65	72,692	94,938
District of Columbia	1	[3]	[3]
Virginia	136	238,764	136,465
West Virginia	76	66,980	33,859
North Carolina	86	382,103	119,762
South Carolina	34	59,959	18,325
Georgia	83	135,214	81,984
Florida	105	21,793	126,869
South Atlantic	601	995,521	632,352
Kentucky	76	306,505	112,496
Tennessee	137	130,447	66,529
Alabama	50	129,392	30,740
Mississippi	135	129,187	166,658
East South Central	398	695,531	376,423
Arkansas	121	74,038	92,544
Louisiana	56	33,745	50,095
Oklahoma	201	159,948	136,068
Texas	536	260,082	444,763
West South Central	914	527,813	743,470
Montana	180	60,887	103,465
Idaho	100	57,098	92,873
Wyoming	24	14,111	22,673
Colorado	110	64,966	134,135
New Mexico	29	11,860	32,280
Arizona	13	57,509	24,784
Utah	72	28,608	79,524
Nevada	6	1,165	4,805
Mountain	534	296,204	494,539
Washington	190	112,989	295,297
Oregon	123	73,122	171,787
California	461	129,957	792,913
Pacific	774	316,068	1,249,997
United States	10,058	7,607,659	9,460,635

[1] Preliminary.
[2] Does not include business between cooperatives.
[3] Membership is credited to States in which it is located, farm products to States in which they originated, and farm supplies to States in which they are sold.

Estimated business in specific commodity and service groups of marketing, farm supply, and related service cooperatives, 1953-54[1]

Item	Number of associations handling	Gross business	Net business after adjusting for duplication [2]
Total farm products[2]	7,258	9,166,212	7,296,636
Supplies purchased for patrons:			
Building material	1,329	89,634	61,809
Containers	1,103	52,792	25,474
Farm machinery and equipment	1,819	96,682	89,567
Feed	4,298	1,065,962	809,671
Fertilizer	3,621	372,896	232,117
Insecticides and fungicides	1,689	37,863	26,583
Meats and groceries	960	57,251	48,050
Petroleum products	2,660	705,527	448,131
Seed	3,439	126,663	94,487
Other supplies	4,164	235,493	160,399
Total farm supplies[2]	7,198	2,839,963	1,976,288
Total service receipts[2]	4,489	187,761	[4]187,761
Total business[2]	10,058	12,193,936	9,460,685

[1] Preliminary.
[2] Adjusted for duplication arising from multiple activities performed by many associations.

"Best time-saver I know of

is the burlap bag," says A. R. Baggett, prosperous truck-farmer of Suffolk, Virginia. "There's no wasted, spilled fertilizer with strong-seamed burlap bags that stand up to rough handling. They stow better and take less men for loading and unloading. I've been a burlap man for 35 years—*was, have been, and always will be.*"

Time-saver, money-saver—no wonder burlap is the farmer's favorite bag. Suppliers who are trying to serve the farmers' best interests pack fertilizer in burlap bags. Fertilizer keeps better in ventilated burlap bags and handles easier in the tough, heavy-duty burlap. You can save your own time and money by packing in the good old standby—burlap.

Just ask your own customers—

they'll tell you that burlap

Is strong — takes dragging, dropping, *man-handling* — any tough job on the farm.

Gives good ventilation — keeps farm supplies and products fresh.

Laughs at sudden showers — wetness or dampness can't weaken it.

Saves money — extra value from re-sale and re-use.

Saves storage space — stacks to any height without slipping.

Has 1000 uses — always in demand on the farm (popular with farm wives, too!)

THE BURLAP COUNCIL

of the Indian Jute Mills Association

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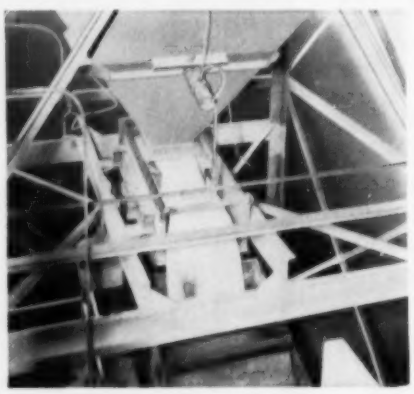
TWO TOOLS

that bring further automation to *your* fertilizer production

Handling super phosphate or other fertilizer ingredients, Simplicity Gyrating Screens combine positive action with perfect smoothness to increase your output. Simplicity Gyrating Screens are mechanically vibrated, using a counterbalanced eccentric shaft which exactly counterbalances the weight of the entire deck assembly. A 3′ x 8′ Model L5 Simplicity Single Deck Screen can handle as much as 50 tons of super phosphate per hour, with virtually no blinding of the screen, and a 3′ x 6′ Simplicity Model C can handle all other fertilizer ingredients at about the same speed. Every Simplicity Screen has the actual available screening area indicated by the given dimensions.

Simplicity Os-A-Veyor Feeders can be bin-hung, as shown in the photograph, or may be spring mounted. The Os-A-Veyor feeds along its entire length and allows for the use of a larger bin, thus avoiding bridging in the bin. Simplicity Os-A-Veyor Feeders have replaceable liners and can be provided with grizzly or screen sections, one or two decks, and can be totally enclosed. Simplicity Os-A-Veyor Feeders are doing a fast, efficient job for fertilizer plants throughout America.



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FOR CANADA: Simplicity Materials Handling Limited, Guelph, Ontario
FOR EXPORT: Brown and Sites, 50 Church St., New York 7, N.Y.

174

which did a net business totaling more than $2.3 billion.

Second in number of memberships was the East North Central region with more than 2 million memberships in 2,091 associations which did a net volume of business amounting to $2.5 billion.

Illinois, Minnesota, and Missouri again ranked first, second, and third in number of memberships with 594,507, 575,095, and 454,306 respectively.

California continued to lead the nation in value of business transacted. With 461 associations and memberships of 129,957, California had a net business of almost $793 million. Illinois was second with about $652 million, and Minnesota was third with more than $632 million.

Richardson Issues New Heavy Duty Scale Data

A two-color, six-page bulletin describing three models of the Class 38 automatic weighing unit for bulk materials is offered by Richardson Scale Company. These heavy duty scales are designed for handling dry, ground, granular, dusty and non free-flowing materials.

The bulletin discusses construction, operation, feeding arrangements and capacities for the scales. A complete line of accessory equipment, including a pneumatic gate assist, residue beam, remote electric counter, and agitators are discussed. A list of over 120 materials that the Class 38 has handled effectively is included.

Twenty-six photographs and diagrams illustrate various installations, scale components and feeding arrangements for these scales.

For copies of Bulletin No. 8946A on the Class 38 scales, write to Robert Jehlen, Richardson Scale Co., Van Houten Ave., Clifton, N. J.

Here is a fingertip controlled power driver box car loader that shuttles in and out of cars and eliminates hand loading. It discharges bags and packages at desired elevation of final stacking. For full information, write F. P. Gray, Power-Curve Conveyor Co. 2185 South Jason St., Denver 23, Col.

Personals

Bemis Bro. Bag Company, has announced the following organizational and personnel changes:

Judson Bemis has become executive vice-president, a newly-created position. He has been replaced as director of Central Operations by **T. H. Ashton,** formerly manager of the Omaha plant and sales division. **C. W. Akin,** assistant director of sales has become manager at Omaha.

R. M. Hersey, manager of the Minneapolis General Sales Division, a director, and assistant director of sales in charge of interdivisional accounts, has become sales director for national accounts and has been elected a vice-president which is a newly-created function in the company. He has been succeeded as manager of the Minneapolis General Sales Division by **J. H. Eastman,** and **M. F. P. Dallison** is special account executive there.

R. D. McAusland, director of Western Operations for Bemis, with headquarters in Seattle, retired on January 30 as a vice-president and a director of the company.

L. A. Linville, assistant director of sales at the Bemis general offices in St. Louis, has been named to succeed him.

Fred J. Young, Sr., has announced his retirement as manager of the Bemis Cotton Mill, Bemis, Tennessee, effective January 30. His son, **Fred J. Young, Jr.,** succeeded him as manager, becoming the third Young in three generations to have occupied this position. His grandfather, **J. B. Young,** was appointed manager of the mill when it was erected in 1900.

Mr. Young, Sr., has served Bemis for 56 years, and has been manager of the Bemis Cotton Mill for 27 years. Mr. Young, Jr., has been assistant manager there since 1948.

H. C. Davis, manager of Bemis Paper Specialty Plants, has been appointed a director of operations, effective January 1, with responsibility for operations connected with certain of the company's more recently developed products. He will be succeeded as manager of Paper Specialty Plants by **A. L. Park,** former assistant to Judson Bemis, director of Central Operations.

* * *

W. Newton Long, president of **Miller Chemical and Fertilizer,** Baltimore, is one of a delegation to survey missions of the Church of the Brethren in England, Germany and India. Mrs. Long is with him.

Bemis — Hersey
Ashton — Eastman
Akin — Dallison
McAusland — Linville

Diamond Black Leaf has named **Wayne D. Wegrich** to manage the recently purchased **Geigy** plant at Des Moines. **Emil C. Gerdes,** who he succeeds will continue as regional manager.

* * *

Fred H. Stewart, since its establishment manager of the **Southwest Potash Co.,** Carlsbad, has been appointed to manager of the parent company's exploration division, and will move to the New York headquarters **of American Metals.** He will be succeeded in Carlsbad by **W. Aubrey Smith,** who has been general manager.

* * *

Leon Brownfield has assumed his duties as fertilizer production manager for both **Lone Star Phosphate** and for **Texas Farm Products Company's** new high analysis pelletized fertilizer plant, now under construction, Nacogdoches, Texas. He had been with **Farm Belt Fertilizer and Chemical,** and prior to that with **Phillips.**

* * *

Dr. A. J. Weith has been made salesmanager of the **American Cyanamid** petrochemicals department.

* * *

John B. Sanford of Atlanta, has resigned his position with **Armour Fertilizer** and purchased an interest in **Woodruff Fertilizer Works,** North Haven, Conn.

* * *

F. L. Wooten, Jr. has been transferred to the general office of **Armour Fertilizer** in Atlanta as unit sales manager of the firm's Wilmington, N. C. division. He was succeeded there by **J. H. Pate,** formerly assistant manager of the division at Norfolk, Va.

* * *

J. Newton Hall has been named Western manager of the insecticides division of **Olin Mathieson,** it has been announced by **Robert Zipse,** general manager. Mr. Hall's headquarters will be in Denver, Colorado.

Mr. Hall is a former sales vice president of **Julius Hyman & Company** of Denver and from 1952 until he joined Olin Mathieson, he was president of **Pioneer Chemical Associate, Inc.** of Denver.

* * *

The Board of Directors of the **Richmond Guano Company** January 16 made the following changes and promotions in its officers: **W. E. Barret** continues as president, **L. Dudley George** from secretary and treasurer to vice president, **William B. Badenoch, Jr.** from assistant secretary to secretary, **Robert A. Bell** from assistant treasurer to treasurer.

Mr. George is a director of the company, member of the advisory board of State Planters Bank of Commerce and Trusts, and a former president of the **Plant Food Institute** of North Carolina and Virginia. Mr. Badenoch was also made a director.

* * *

Kay Miller, formerly chief research and development engineer of **Borg Warner Corp.** has been appointed assistant chief engineer of **American Tractor Corp.,** Churubusco (Ft. Wayne) Ind., according to announcement just received from **T. A. Haller,** vice president and director of engineering.

Dallas Cantwell, who has been appointed assistant general sales manager for Southern Nitrogen Company. From his FFA years on he has been active in agriculture, holds a degree in Agriculture from Tennessee, worked as agronomist and later as coordinator of district offices with the main office of Spencer's agricultural sales.

The annual meeting of the **Smith Agricultural Chemical Company** was held at the company's office on Monday, January 16.

The board of directors was increased from ten to eleven members. They are as follows: **John E. Powell, William F. Farley, Nelson T. White, Clement S. Schmelzer, Carl E. Veth, Lowry Sweney, F. Herbert Hoffman, Jr., Marshall A. Smith, Frank R. Schwartz, Jr., William A. Copeland** and **Earl F. Cline.** All are residents of Columbus, Ohio. Mr. Cline is the newly elected member of the Board. He has been an employee for thirty years and has served as head of the production department.

The following officers were re-elected: Mr. Powell, chairman of the board; Mr. Farley, president; Mr. White, executive vice president; Mr. Smith, vice president and division manager of the Columbus operations; Mr. Schmelzer, treasurer; Mr. Veth, secretary; Joseph W. Sheeran, assistant treasurer and auditor.

In addition Mr. Cline was named vice president and will head the production department. **Hartl W. Lucks,** who has been in the Company's employ for twenty-eight years was also named a vice president. He has headed the advertising and mineral feed departments and will continue to serve in that capacity. **George L. Pelton** was named assistant secretary, succeeding **Frank H. Nicklaus** who has retired.

* * *

The appointment of **K. R. Chandler** as service manager for the **Koehring Company** was announced recently by **John S. Conway,** vice president of sales. He succeeds **G. N. Nelson** whose retirement after 44 years of service with the Koehring Company became effective on December 31. Mr. Chandler joined the Koehring Company engineering staff in 1948.

* * *

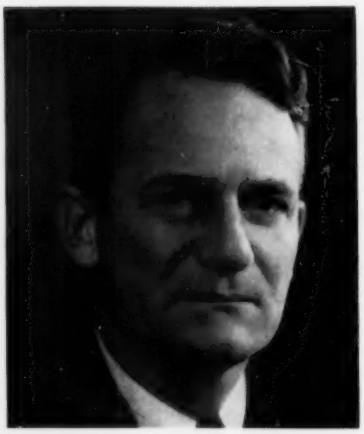
Richardson Scale Co. recently announced that **Officine Nuovo Reggiane** has appointed **Rudolfo Quarenghi** to be in charge of engineering, production, application and servicing of all Richardson equipment produced in Italy where Richardson equipment is manufactured under license by Officine Nuovo Reggiane at Reggio Emilia.

* * *

Willard M. Fifield, University of Florida provost for agriculture, has been named man of the year in service to Florida agriculture. **Dr. Walter Reuther,** head of the **Florida AES** has resigned to become chairman of the horticulture department at the new **Riverside Citrus Experiment Station** of the **University of California.**

* * *

Paul M. Kroger, has moved up from Southeast Area Director, Commodity Stabilization Service to be administrator of the **USDA's** Agricultural Conservation Program Service.



William F. Jacobi who has been appointed by Union Bag & Paper to direct their newly created package engineering department. John F. Hordych has been made assistant director.

* * *

Professor William L. Lachman, of the **University of Massachusetts,** was awarded the all-American Committee's silver medal for achievement in horticulture. He has since 1936 developed five new varieties of hybrid sweet corn.

* * *

Klein Soil Service of Fowlerville, Michigan, announces the appointment of **James A. Parsons** as plant manager to succeed **Robert W. Parsons** who recently purchased the bulk spreading trucks and nitrogen solution business from Klein Soil Service.

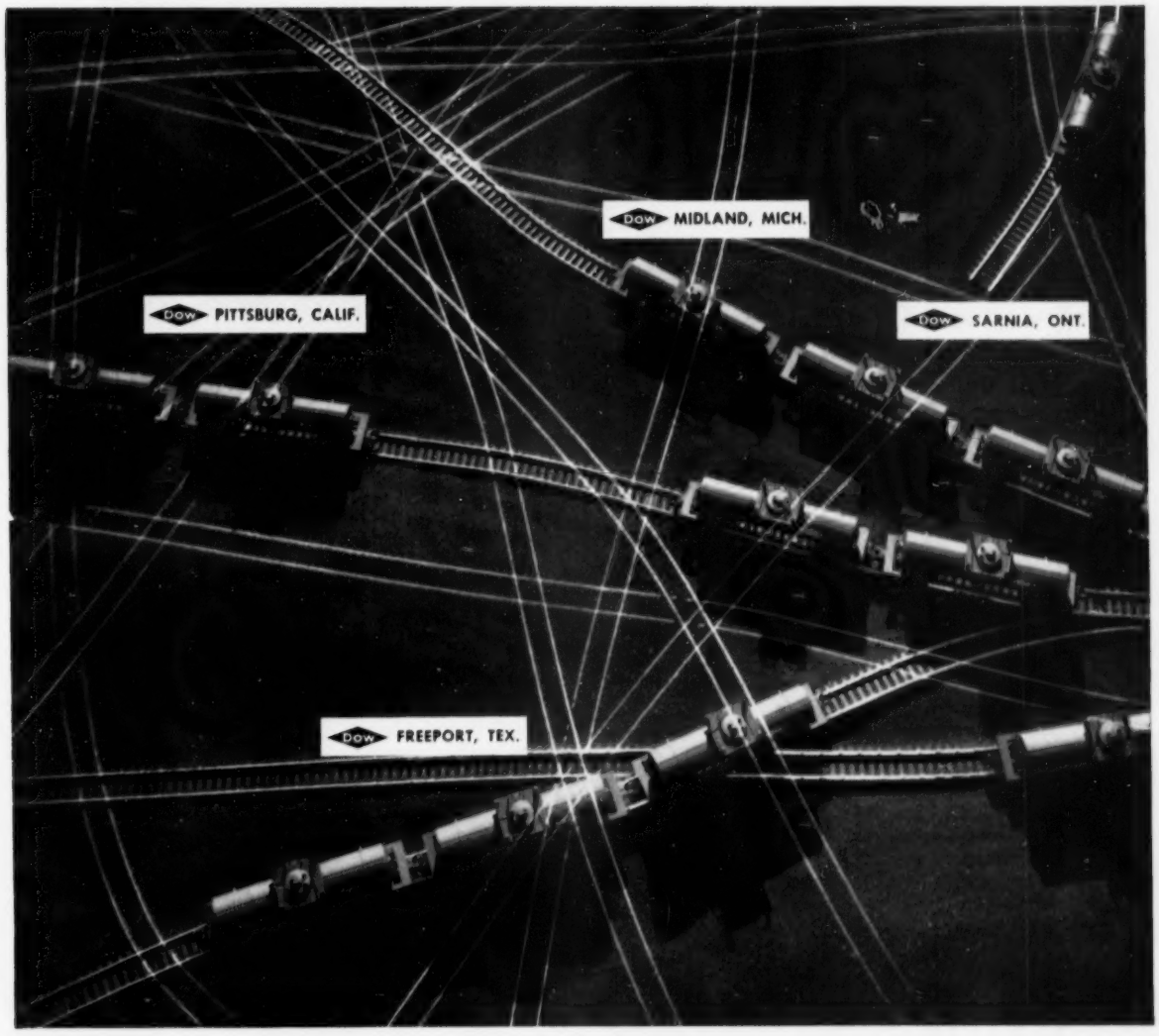
* * *

St. Regis Paper announces that **Willard E. Hahn,** vice president, has been named manager of manufacturing for all St. Regis packaging and converting plants as well as for the Engineering and Machine Department and the Wire Tie Department of the company.

Left, Roy E. Jury, just made a vice-president of Arkell and Smiths; Robert C. Masoner, who has been made Central Division salesmanager for the multiwall bag manufacturer.

Lee Conahan, who has joined National Plant Food Institute as an editorial assistant, succeeding Peter C. Crollius, who has joined the Nitrogen Division.

DOW



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NITROGEN

SULPHATE OF AMMONIA
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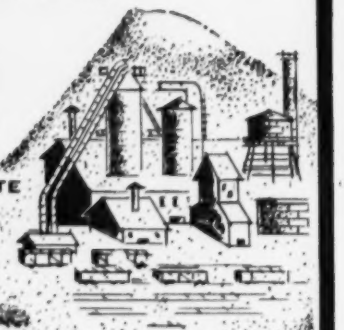
UREA

AND ALL OTHER FERTILIZER AND FEED MATERIALS



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and ALL TYPES OF BASE GOODS
EXPORT ORDERS SOLICITED

International Minerals & Chemicals has announced these personnel changes:

In the Plant Food Division, **C. B. Brisendene** has joined the marketing staff as advertising and promotion supervisor, reporting to **Gerald J. Carney,** marketing staff manager.

In the Phosphate Chemicals Division, **Bryce L. Rhodes** has been made development and production staff manager; **James F. Roe** is now manager of Florida operations; **Charles A. White** is manager of the division's Tennessee operations; **Robert V. Safford** is assistant manager of Florida operations; **Ralph W. Lorentz** is superintendent of the Bonnie Plant.

In the Phosphate Minerals Division, **Charles E. Martin** has become Northern area sales manager; **R. B. Fuller** is special consultant to the Division. He has been with International nearly 30 years.

Chase Bag appointments: John P. Grady, assistant general sales manager; Harrison B. Rue, manager of the Buffalo branch who takes on the added duties as Eastern Regional Sales Director; J. T. Cleland, now salesmanager of the Dallas branch; Don R. Munro, salesmanager of the Milwaukee branch.

The American Agricultural Chemical Co. announces the following personnel change: **R. P. Cagley,** formerly assistant sales manager of the Cleveland, Ohio branch, has been appointed assistant sales manager of the Company's East St. Louis, Illinois branch. **R. M. Richey,** formerly superintendent of Baltimore Works becomes responsible for production as Divisional Superintendent at the following A.A.C. Co. plants: Alexandria, Va., Baltimore, Md., Cincinnati, O., Henderson, N. C., Norfolk, Va., Washington Court House, O. **J. A. Layton,** formerly of production department, New York office, becomes responsible for production at Baltimore Works as Superintendent. **R. M. Ludwig,** becomes responsible for all phase of the company's chemical control work as director, Chemical Control Department. **B. E. Thorne,** formerly assistant manager, Buffalo sales office, becomes responsible as assistant manager, New England sales office at North Weymouth, Mass. **J. J. Graham,** formerly manager of Houlton Sales, becomes responsible as manager of New England Sales, office at North Weymouth, Mass. **R. R. Johnson,** formerly sales supervisor of Humboldt Sales office, becomes responsible as assistant manager, Humboldt Branch at Humboldt, Iowa. **E. B. Stalnaker, Jr.,** formerly assistant manager, Alexandria, Va. sales office, becomes responsible as assistant manager, Buffalo sales office.

* * *

A. O. Hallman assumed his duties as general manager, secretary and treasurer of **Standard Chemical Company** on January 16, 1956.

* * *

Donald L. Fuller has been appointed director of research for **Grace Chemical Research and Development Company,** division of **W. R. Grace & Co.**

This division was formed last May to spearhead Grace's future expanpansion into new areas of the chemical industry.

* * *

John A. Roberts of New York City, who was born and reared in Utica, will be leaving soon for Korea for two years of service with the **International Cooperation Administration** as an adviser on fertilizer to the Korean Government.

Until moving to New York recently, Roberts made his home for ten years in Des Moines, Iowa, where he built and was president of the **Pioneer Phosphate Company.**

Martin

Brisendene

Wilson Meyer of San Francisco, president of **Wilson & Geo. Meyer & Co.,** pioneer Pacific Coast importers and distributors of agricultural and industrial chemicals, has been named president of the State agency which owns and operates the famous San Francisco Cow Palace, site of the 1956 Republican National Convention.

* * *

The Agency, No. 1A District Agricultural Association, also sponsors the annual Grand National Livestock Exposition, Horse Show and Rodeo, one of the nation's top ranking livestock shows, and its companion Junior show, annual stock show for 4-H and FFA members.

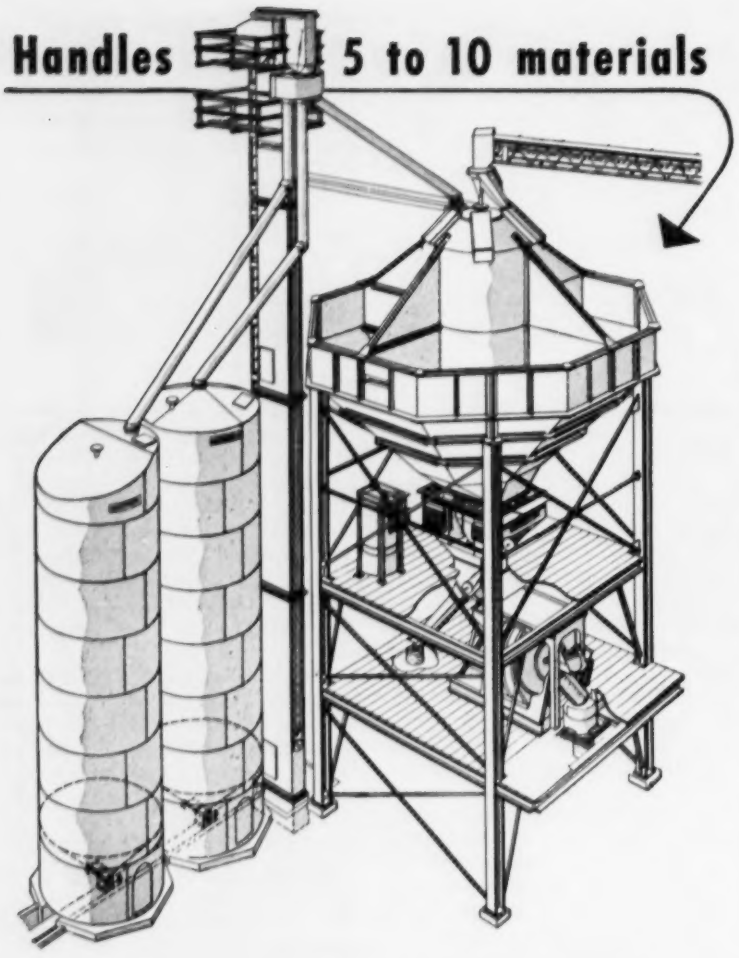
Meyer has been a member of the District's board of directors since 1948. The directors, all prominent San Francisco and San Mateo businessmen, contribute their services as officers and directors without compensation.

The Republican National Convention next August will tax the facilities of the huge Cow Palace which seats 16,000 without a single pillar or post to obstruct anyone's vision.

Pictured, Anton M. Horehled, now manager of nitrogen product sales for Sinclair's plant at Hammond. He has been with Wisconsin Farmco Service and Olin Mathieson; in the commercial agricultural chemical field since 1948.

Not shown, John A. Corrigan, who has been made District Sales Manager for Sinclair's Midwest area.

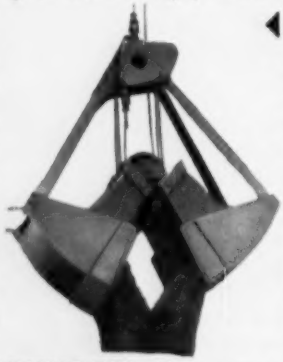
Handles 5 to 10 materials



Bin capacity: 150 to 1100 cubic yards

On fertilizer blending operations, multiple ingredients are instantly available with this Johnson Octo-Bin plant. Overhead storage bin has 4 to 8 compartments arranged around a centrally-located tank having 1 or 2 compartments. Tank is charged by chute from bucket elevator. Open bin compartments can be charged by a second elevator or belt conveyor, with pivoted distributor for feeding materials into proper section of bin.

Plant can be arranged with clod-breaker, vibrating screen and collecting hopper for pulverizing and screening materials before they are fed into the bin. Single or multiple material batchers, with manual or automatic controls, accurately weigh materials at high speed, and discharge into mixer for final blending operation. Let us show you how this multiple-material plant can be adapted to meet your specific requirements. Several other types and sizes of Johnson plants and accessory equipment also available.



Fertilizer buckets —

To stockpile, load and unload chemicals, fertilizers, and other fine-grained materials, Johnson brings you a special clamshell bucket. All-welded, smooth inside and out, it loads fast — gives quick, clean dump. Powerful closing action of hard manganese cutting lips prevents load leakage as you hoist and swing the bucket. 10 wide-rehandling sizes: ⅜ to 3 cu. yds. See your Johnson distributor, or write to us.

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(Koehring Subsidiary) J548

E. T. York, Jr. who has assumed managership of the Northeast territory for American Potash Institute, following retirement of S. D. Gray who had held that post since the 1935 formation of the Institute.

Institute Offers Second Award

Announcements of the Second Annual Agricultural Communications Award, presented by the National Plant Food Institute and the American Association of Agricultural College Editors, have been sent to extension and experiment station editors and other key personnel at the land-grant colleges.

The purpose of the Award is to provide an opportunity for a member of the Association, who has shown notable growth in competence and achievement in agricultural communications, to receive advanced professional improvement training in some phase of agricultural communications.

The Award consists of $500.00 presented by NPFI and an attractive scroll.

The judges will be C. M. Ferguson, Administrator, Federal Extension Service, Chairman; John McDonald, Station WSM, Nashville, President of the National Association of Television and Radio Farm Directors; and Tom Anderson, Editor and Publisher of FARM AND RANCH and President of the American Agricultural Editors' Association.

Rodger C. Smith, a member of the fertilizer research staff, has been appointed head of fertilizer research for Eastern States Farmers' Exchange, West Springfield, Massachusetts.

CHANGES

Two pioneer California firms—**Stauffer Chemical** and **Wilson & Geo. Meyer**—have announced the signing of a long-term exclusive sales agreement.

Under the agreement, the Meyer firm will widen its distribution in the West and Midwest to handle the increased production of new pelletized agricultural phosphates produced by the Stauffer Company.

The agreement was announced jointly in New York by **Hans Stauffer,** president of Stauffer Chemical and **Wilson Meyer,** president of Wilson & Geo. Meyer & Co.

The agreement extends the close family and business relationships which have existed between the two firms over a long period of years.

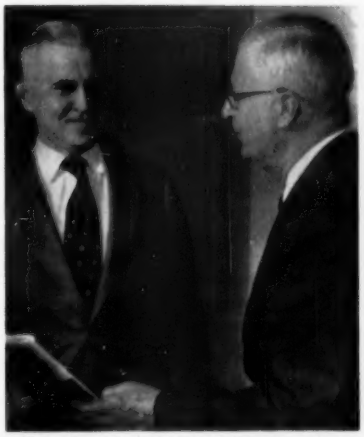
The Meyer firm was founded in San Francisco 105 years ago. When, some years ago, the Stauffer Company, itself a pioneer firm, embarked on the manufacture of agricultural phosphates at plants in Richmond and Vernon, California, it designated the Meyer firm as its sales agent.

The Meyer firm has district offices in Los Angeles, Portland, Seattle, Spokane, Salt Lake City, Denver, Phoenix and Fresno, in addition to its headquarters in San Francisco.

One of the important recent developments in Stauffer operations was the addition of a new unit at its Vernon, California plant to produce modern, pelletized plant foods to meet the expanding needs of Western agriculture.

They also include the huge new plant of Western Phosphates, Inc. at Garfield, Utah, in which the Stauffer Company shares an interest with American Smelting and Refining Company and Kennecott Copper Company. Built in 1953, the plant has already been enlarged and is now operating at well over its original estimated capacity.

For these Stauffer plants and others, the Meyer firm has acted as sales representatives in the West and Midwest. The new agreement announced in New York extends and formalizes this relationship for many years in the future.



Hans Stauffer, president, Stauffer Chemical Co. (left) and Wilson Meyer, president, Wilson & Geo. Meyer & Co., heads of two pioneer California firms which have just concluded a long-term exclusive sales agreement.

Lion Oil Company, a division of **Monsanto,** has opened new chemical sales offices in Des Moines, Iowa, and has moved the Montgomery, Alabama, chemical sales offices to Atlanta, Georgia, according to an announcement by **A. F. Reed,** division vice president for sales.

The new offices at Des Moines are located in the Insurance Exchange Building, under the management of **George C. Kempson,** formerly assistant manager of the Montgomery sales office.

The new Southeastern district sales offices in Atlanta are located in the 1401 Peachtree Building and are under the direction of **R. S. Johnson.** Other divisions of Monsanto Chemical Company also maintain sales offices there.

* * *

St. Regis Paper Company (Canada) Limited, announces that its multiwall packaging division will transfer its sales and engineering offices from Hamilton, Ontario, to 360 Bay Street, Toronto, effective January 1, 1956.

Colin M. Marquis, formerly assistant to the general sales manager in Montreal has been named Ontario district sales manager at the new office. Mr. Marquis succeeds **T. P. Kidd,** who retired on January 1, after more than 36 years with the company. Mr. Marquis joined St. Regis in 1948.

The Cameron & Barkley Company, distributor of industrial supplies in the states of South Carolina, Georgia and Florida, has been appointed distributor of **Blaw-Knox** electroforged steel grating and treads.

The electroforging process used in their manufacture insures strength, an absence of loose parts, and low maintenance costs of these Blaw-Knox gratings which are adaptable for a wide range of industrial applications.

Available in a number of types, Blaw-Knox Grating will be distributed through Cameron & Barkley branches at Charleston, S. C., Savannah, Ga., and Jacksonville, Orlando, Tampa and Miami, Florida.

* * *

Bemis Bro. Bag Company is reorganizing and moving certain of its manufacturing operations in the East, it has been announced by **F. V. Deaderick,** director of Eastern operations. This will involve closing the company's Brooklyn plant and dividing its production among other Bemis plants serving the area.

Bemis will continue to maintain a sales and office force, to operate as the **Brooklyn Sales division,** serving the New England States and portions of New York, New Jersey and Pennsylvania. **J. V. Richards** will continue as manager of this sales division.

Delivery of textile bags, specialties and other Bemis products in the territory previously served by the Brooklyn plant will be divided among Bemis plants at Norfolk, Buffalo, New Orleans, Memphis, East Pepperell, Mass., Albion, N. Y., and Crossett, Ark. Some equipment from Brooklyn is already installed and operating in these other plants.

The Norfolk, Virginia, plant is expanding its facilities for the manufacture of various textile specialty items, it has been announced by **W. D. Stohlman,** manager. It will also take on an enlarged delivery territory for textile bags, while sales territories remain unchanged.

Additional plant space for this expansion is being made available by the reallocation of Norfolk's previous small paper bag manufacturing capacity to the Bemis plants in Buffalo and Memphis. Modern equipment installed in these plants can more adequately service small paper bag requirements in Norfolk's sales territory.

The Norfolk Sales Division will continue to be responsible for the sales of all Bemis products in its territory, including small paper

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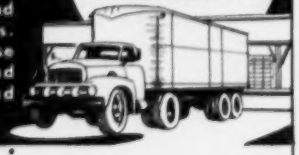
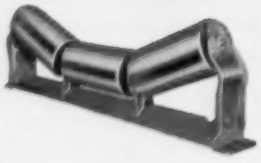
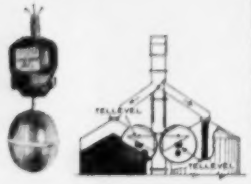




745 Belt Conveyor Idlers
Write for Bulletins 355 and 1454-A



"Tellevel" Bin Level Controls
Write for Bulletin 11-0

Car Pullers and Spotters
Write for Catalog 753

Holdbacks for Conveyors and Elevators
Write for Bulletin 155

Portable Box Car Loaders
Write for Bulletin 948

"Swiveloader" Car Loaders
Write for Bulletin 854

Conveyor Belt Cleaner
Write for Bulletin 1754

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(54-56% Calcium Carbonate)

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bags, as in the past. Production of cotton, burlap and open-mesh will be increased, and textile specialties will be added.

* * *

Link-Belt Company has opened a new district office in Shreveport, La., at 3109 Alexander Street.

The territory to be served by this new office will include Northern Louisiana, Southern Arkansas and 14 neighboring counties in Texas, according to **Allan Craig**, Houston, general manager of the Link-Belt Southwest Division.

Gerald A. Stone, who formerly had responsibility for sales in much of this territory from the Link-Belt district office in Dallas, has been appointed district manager.

This brings to 40 the network of Link-Belt district offices in key cities from coast to coast.

Mr. Stone joined Link-Belt Company in 1945. Also assigned to the Shreveport office will be **Hunter McKay**, Link-Belt sales engineer, who likewise was formerly assigned to the Dallas office.

OBITUARIES

Walter A. Allen, 62, Pittstown, N. J., operator of Allen Co. died December 29 after a short illness.

R. Waldo Banks, 53, co-owner of the Banks Fertilizer Co. and other interests in Columbia, S. C., died after a stroke which occurred during a football game in November.

Edward J. Reardon, 28, of the American Chemical Society's editorial staff, died January 10 in a Washington hospital after an illness of several months.

G. L. Reeves, 53, Tampa, Florida, attorney and director of Lyons Fertilizer, West Coast Fertilizer, and numerous other major concerns, died of a heart attack in his office December 7, in Tampa.

R. Kirby Shirley, 56, senior vice-president of Freeport Sulphur Co., died January 24 at New York.

John L. Stewart, 35, salesman for Darling Fertilizer, died in Mexico, Mo. December 19, after a long illness.

Albert Walter, former president and board chairman of Stauffer Chemical Co., died January 28, at his home in Miami, Fla. He retired in 1946 after 40 years with the company.

RESEARCH RESULTS & REPORTS

Virginia AES research which is of importance to the fertilizer industry includes a project which has given results of present day significance and a basic research project from which practical results may be expected soon, perhaps, but most probably some years hence.

The first project is concerned with the effect of fertilizer granulation on the availability of phosphorus to plants. The effect of incorporation of nitrogen and potash fertilizer in the granules is also being studied. Measurement of availability was made with phosphates tagged with radioactive phorphorus. These phosphates were broadcast on permanent bluegrass pastures. When monocalcium phosphate (0-27-0) was granulated, the maximum availability was at about 14-20 mesh. However, when monoammonium phosphate (10-10-10) or monoammonium (potassium) phosphate (10-10-10) were applied, the availability remained about the same at different granulation levels (20-28, 14-20, 8-12, and 4-6 mesh) although there was a slight increase as the granulation size increased. Plots not receiving N and/or K in granules received the same amounts of N and K broadcast as ammonium sulphate or muriate of potash so all plots received a total of 50 pounds each of N, P_2O_5, and K_2O.

Monocalcium phosphate in 4-6 mesh granules produced bluegrass which obtained 29% of its phosphorus from the fertilizer. This value was increased significantly to 46% for monoammonium phosphate and 40% for monoammonium (potassium) phosphate. It appears that the intimate association of N and P fertilizers is essential to the maximum availability of phosphorus in large granules on this soil. The chemical form of the phosphorus did not appear to be important because pulverized materials showned no significant differences in availability. This work is continuing in the greenhouse with different soil types at different pH levels.

The basic research project deals with the smallest size fraction and most active part of mineral soils, that is, the clay minerals. Their minute size and sheet like form give these minerals tremendous surfaces for holding water and nutrients for plant use. But these minerals are very different in make-up and their reactions, when fertilizer is applied and when plant roots absorb nutrients, are also very different. These clay minerals in several of Virginia's soil types are being identified by means of x-ray diffraction and other methods. Variations in properties of these minerals as influenced by chemical and physical changes in the soil and are also being studied. These differences are studied with the objective of understanding better the mechanism of "fixation" of nutrients by soils and the availability of these nutrients to plants. Understanding these problems better may lead, eventually, to ways of increasing the efficiency of use of lime and fertilizers.

* * *

3911 report, the first we have seen, has been published by Georgia AES, under the byline of C. M. Beckham and L. W. Morgan, describing their tests of the new systemic insecticide, and giving their results for the 1955 season, in which five Georgia stations participated. A two-sentence summary: "Results of these tests show Compound 3911 to be promising systemic insecticide for control of early-season insects on cotton. Although a reduction in stand resulted, this may be offset by a heavier seeding rate."

* * *

Water bookkeeping is in the future, says USDA. They visualize (in "Agricultural Research" for December) the farmer keeping books on rainfall, and turning on the irrigation when the books show a moisture deficit. He would have a basic factor derived from a technical study of his soil and how much water it can hold at the root level, how fast evaporation would be in his soil . . . and from these fundamental figures he could calculate when and how much water to turn on.

They point out that the farmer and his banker, both, could benefit by a careful study of the water picture on a farm. How much is, or could be made available — and by relating these in terms of the long-term drought picture to the specific piece of land, guide the farmer in his activity and the banker in his loans.

The whole project, which is really an elaborate study that is far from complete is headed by C. H. M. vanBavel, ARS and N. C. State soil

(Continued on page 72)

STEDMAN

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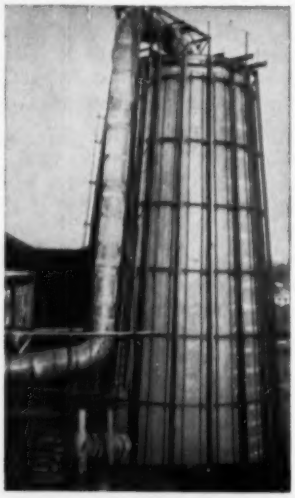

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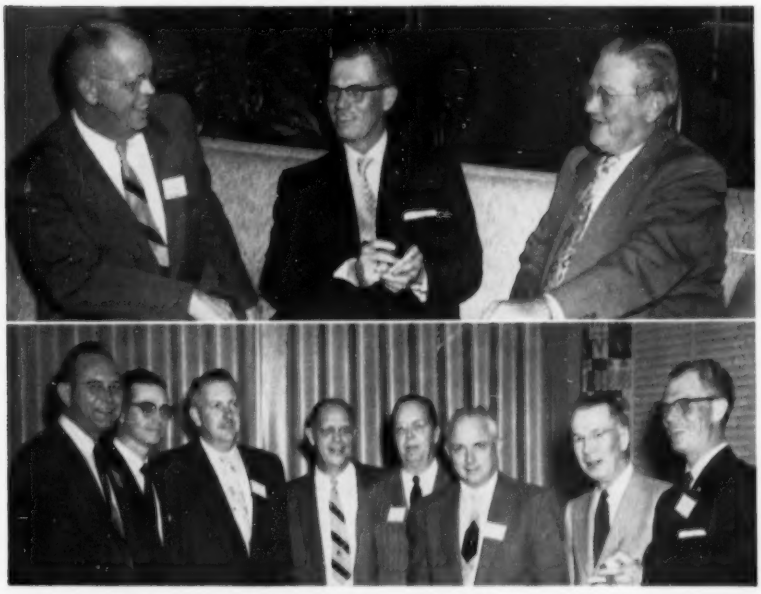

Top: FERTILE DISCUSSION—three of the leaders in the Texas Fertilizer Conference take time out to talk things over. They are, from left, Dr. J. F. Fudge of the Agronomy Department at the College, conference chairman; B. L. 'Red' Henderson, Campbell Fertilizer Co., Houston, president of the Texas Plant Food Educational Society; and Sherman Clark of Houston, Texas Gulf Sulphur Co., secretary of the society.

Bottom: Ivan Gilliland, International Minerals and Chemical Corp. Fort Worth; Tom Wright, Texas Farm Products, Nacogdoches; Mike Wells, Armour Fertilizer, Dallas; Dr. Fudge; James D. Dawson Jr., Fidelity Chemical, Houston; N. D. Morgan, American Potash Institute, Shreveport, La.; Dean J. E. Adams of the A. and M. School of Agriculture, and 'Red' Henderson.

SOIL TESTING FEATURED AT TEXAS A&M FERTILIZER MEETING

"You ought to get everyone of your customers to have his soil tested," Frank Boyd told more than 160 members of the fertilizer industry at Texas A&M last month. "Soil testing is the best thing that ever happened to us."

Boyd, agronomist for Virginia-Carolina in Montgomery, Ala., was one of the final speakers during the annual Texas Fertilizer Conference, sponsored by the Texas A&M College System. He discussed the overall fertilizer picture in view of common practices, and recommended a closer fitting of supply to the actual need of the farmer.

Using East Texas soils as an example, he said that 48 percent of the soils need an even phosphorus-potash quantity; 43 percent need high phosphorus-low potash, and 9 percent need low-phosphorus-high potash mixtures.

What was sold, however, in 1955 was 22 percent even content; 77 percent high phosphorus-low potash, and 1 percent low phosphorus-high potash.

Reporting on the fertilizer outlook for 1956, James D. Dawson, Jr. of Houston said, "The growing demands of consumers and the efforts of producers to fill them during 1955 shows that we can have prosperity without inflation. Right now it looks as though the only shortage in the fertilizer industry during 1956 will be a shortage of boxcars and tankcars."

Dr. J. F. Fudge, of the Agronomy Department at the college, served as chairman for the conference.

ACS Elects Davison's Bridger

Dr. Grover L. Bridger, director of agricultural research of Davison Chemical, has been elected chairman of the American Chemical Society's Division of Fertilizer and Soil Chemistry for 1956. The chairman for 1955 was George H. Serviss, of the G. L. F. Soil Building Service.

Dr. Stacy B. Randle, state chemist at the New Jersey AES was named vice-chairman; Dr. Kenneth G. Clark of the fertilizer and agricultural lime section, USDA, was elected secretary; T. Joseph Bosman of the Federal Chemical Company, was elected representative on the national Society's council, and John O. Hardesty of USDA's Plant Industry Beltsville Station was chosen alternate councilor.

The Division of Fertilizer and Soil Chemistry has a thousand members.

Miss ASA's Elect Stoneville's Giles

Dr. William L. Giles, superintendent of the Delta Branch Experiment Station, Stoneville, was elected president of the Mississippi Section of the American Society of Agronomy at the organization's annual meeting at State College. He succeeds Dr. Ivan E. Miles of Starkville.

Si Corley of Jackson, state comissioner of agriculture, was named first vice president, and professor O. V. Clark, subject matter specialist for the agricultural education department of the State Department of Education, was elected second vice president. Dr. C. Dale Hoover, head of the State College agronomy department, continues as secretary-treasurer.

At the first session of the two-day meet, Glenn C. Rutledge, experiment station editor, presided over a panel discussion on "Methods of Getting Information to Farmers." Others on the panel were Mrs. Edna Earle Wilkerson of the extension service publicity staff, B. C. Hurt, Jr., superintendent of the Flatwoods Branch Experiment Station at Pontotoc, G. W. Gilliam, vocational agriculture teacher at Randolph, C. F. Randle, county agent for Pontotoc county, Benton Fatherree, FHA representative from Jackson, Joe Culpepper, representative of the Spencer Chemical Company of Kansas City; J. W. Pruitt, cotton grower of Inverness, and Fred Jackson, corn grower of Tutwiler.

Later the agronomists made a tour of the Mississippi Seed Improvement Association's headquarters located on the State College campus. At a banquet in the State College grill J. T. Caldwell of Jackson, manager of the Virginia-Carolina chemical company, acted as toastmaster, and two State College students, Addison Davis Owings of Terry and John Keyes of Jackson, were announced as winners of scholarships worth $200 each offered by the National Plant Food Institute.

Afterward the participants attend-

ed the premiere showing of "The Good Harvest," a film produced by the Mississippi Seed Improvement Association on production and certification of seed in Mississippi.

A wait-and-see attitude towards the proposed "soil bank" plans was advocated by Grady B. Crowe of Stoneville, senior agricultural economist, Delta Branch Experiment Station, in an address to the closing session.

Mr. Crowe's speech followed a discussion of sulfur as a plant nutrient by Howard V. Jordan, USDA soil scientist, and a panel discussion of new crops by several plant breeders of the Experiment Station staff. Mr. Jordan's chief point was that crop needs for sulfur at present are met partly by the sulfur which incidentally occurs in commercial fertilizers, but that as fertilizers devoid of sulfur come into use, it may become necessary to provide sulfur intentionally.

S. C. Society Corn Contest Lunch

The South Carolina Plant Food Educational Society will hold its annual Corn Contest luncheon in Columbia at the Jefferson Hotel on February 15, at 12:00 Noon. The purpose of this meeting is to announce the winners of the state wide corn contest which is sponsored by the Society through contributions of the plant food industry. It will award prizes to winners of this contest and also recognize members of the 100-bushel corn club.

The Society will hold the annual fall convention at the Clemson House, Clemson, S. C., on Thursday, September 6, at 1:30 P.M. This meeting is usually attended by agricultural leaders throughout the southeastern states and is usually the highlight of the year.

Cotton Meeting Studies "Squeeze"

A cross-grained segment of the cotton industry met in Memphis and analyzed "the greatest crisis ever to confront the South's traditional money crop."

More than 500 cotton farmers convened at Hotel Claridge to review the cotton problem in the light of recent recommendations adopted as policy of the American Farm Bureau Federation.

Represented at the Farm Bureau-sponsored gathering were cotton minded folk from Tennessee, Mississippi, Arkansas, Louisiana, and Missouri. The Mississippi Valley meeting, as it was called, is but a kick-off meeting for other similar meetings to be held in the various states to help activate the recommendations into a program for their solution.

American Farm Bureau Federation President Charles Shuman opened the meeting with a note of warning over the seriousness of the situation. John C. Lynn, legislative director of the American Farm Bureau Federation, presented facts pointing out that action must be taken immediately if the United States is to reverse the trend now swinging the cotton business to foreign markets and mills.

Representatives of the National Cotton Council and the American Cotton Manufacturers Institute cited the advances being made by synthetics over cotton in the textile trade.

Colorful statements from the floor described the plight of the cotton farmers who of late "have been squeezed until they can't be squeezed any more."

Dr. M. K. Horne, Jr., chief economist of the National Cotton Council, said, "I can easily visualize a total market of only 8 million bales by 1960 if present trends continue and I can just as easily visualize a market of 16 million bales if we meet the competition of price, quality, and promotion."

CFA Warns Of Technician Shortage

In an effort to promote the complete education of as many promising students of the agricultural sciences as possible, the California Fertilizer Association January 9 addressed letters to the 237 instructors of vocational-agriculture in the high schools and junior colleges of California.

The letter calls attention to the growing shortage of qualified agronomists, entomologists, chemists and other technicians so vitally important to agricultural progress. It points out the fact that our standard of living is concerned in a major way.

The contributions which thoroughly trained persons are making in the field of agriculture and in its allied industries are said to be handsomely rewarded, both materially and in personal satisfaction. Three general paths which trained persons may follow include 1, instruction of the next generation of scientific farmers; 2, institutional research, and assistance to the farmer; and 3, employment in the fertilizer, pesticide, seed, and similar industries.

All high school and junior college instructors of vocational-agriculture are urged by CFA to use their strongest influence upon their promising students and their parents to assure the completion of their technical educations. This program, if successful, will fill many gaps in the ranks of qualified agricultural technicians, the Association says.

The letter concludes with the promise of the Association to assist in placing in the commercial fertilizer industry those who are qualified through education, aptitude, and inclination.

CFA Conference April 16-17

The fourth annual California Fertilizer conference, sponsored by the Soil Improvement committee, California Fertilizer Association, will be held on the campus of the Citrus Experiment Station, University of California, Riverside, on April 16 and 17.

John H. Nelson, Stockton, chairman of the sub-committee in charge of arrangements, said an outstanding program is being developed.

INDUSTRY CALENDAR

Date	Organization	Place	City
Feb. 15-17	Western Weed Control Conf.	Univ. of Calif.	Davis, Calif.
Feb. 16-17	Middle West Soil Imp.	Edgewater Beach Hotel	Chicago, Ill.
Mar. 4-6	Sou Safety	Biltmore	Atlanta, Ga.
Mar. 14-16	Nat'l Ag. Chem.	Hollywood Beach	Hollywood Beach, Fla.
June 10-13	NPFI	Greenbrier	White Sulphur, W. Va.
June 28-30	Sou Control	Roanoke	Roanoke, Va.
June 28-30	Pacific N.W.		Yakima, Wash.
July 18-20	SW Grade	Bucaneer	Galveston, Tex.
July—	Eastern Canada		Mont Tremblant, Que.
Oct. 19	Control Officials	Shoreham	Washington, D. C.

NAC Meeting March 14-16

The NAC's 1956 Spring Meeting will be held March 14, 15 and 16 at the Hollywood Beach Hotel, Hollywood, Florida.

Top industry and government speakers on the program will discuss the latest information on the use of atomic energy in agriculture, the development and marketing of new pesticides, new uses for fungicides, USDA pesticide research activities, and the economics of the cotton industry. The theme, "Read The Label For Safety" will be highlighted in a report on the association's greatly expanded safety and safe use program.

Featured speakers will be George P. Larrick, Commissioner of Food and Drugs, and Dr. J. Wayne Reitz, President of the University of Florida.

Outstanding Speakers At Pennsylvania Conference

As we go to press, the 1956 fertilizer and lime salesmen's conference is being held at Pennsylvania State University, with a distinguished list of speakers, heading up an elaborate and well-balanced three-day meeting. Among these are R. P. Pennington of American Potash Institute, A. A. Shultz of Reading Bone Fertilizer, M. C. McVickar of National Plant Food Institute, A. B. Morgan, New Holland Machine Company.

The program will run the gamut of technical and selling instruction to the salesmen with the Penn State personnel playing a major role, assisted by leading lights in Pennsylvania agriculture.

New York AES Celebrates Century of Horticulture

Apple varieties that were favorites in grandfather's day will share the spotlight with the most recent introductions at the celebration of the "Second Century of Horticulture" in Rochester January 17 to 20.

The occasion is the commemoration of the first hundred years of the New York State Horticultural Society which was organized in Rochester in 1855 coupled with a look ahead to the second century.

Oklahoma Conference February 15-16

The eleventh annual Crops, Soils, and Fertilizer Conference will be held in the Student Union, Oklahoma on February 15-16, 1956.

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Ga. PFES ELECTS NUNNALLY, HEARS ILLINOIS' RUSSELL

J. Elam Nunnally, director of Plant Food Service for The Cotton Producers Association, Atlanta, was elected president of the Georgia Plant Food Educational Society at the group's annual meeting in Athens January 17, with attendance exceeding 400 for the session.

Dr. J. Fielding Reed, Southern manager for American Potash Institute, Atlanta, perennial secretary-treasurer, was returned to office for another year at the one-day session which was followed by an evening banquet and fun frolic.

On the next day the Georgia Section of the American Society of Agronomy and the Soil Science Society of America held its annual meeting at the same site, so that members of each group were on hand to participate in the programs of the other, and to share the banquet.

P. D. Temple of Danielsville became PFES vice president for the Northeast district, where W. W. Doughty of Augusta Fertilizer Co., Augusta, remained as carry-over director. New directors for this district are C. R. Mason of Mason Gin & Fertilizer Co., Madison, and Malcolm Rowe, Rowe Warehouse & Fertilizer Co., Athens.

In the Northwest district, L. Ralph Boynton of United States Potash Co., Atlanta, was elected vice-president, and Henry Mauldin of Calhoun was elected to fill an unexpired term. Other new directors for the district are Julian G. Reames of Armour Fertilizer Works, Atlanta, and W. L. Baughcum of International Minerals & Chemical Corp., East Point.

John L. Cope of Reliance Fertilizer Co., Savannah, was elected vice president for the Southeast district, and George D. Brantley of Blackshear Manufacturing Co., Blackshear, became the new director. Held over as directors were David W. Reed of Evans, Reed & Williams, Sylvania, and Roy A. Hendricks of Metter.

For the Southwest district John P. Porter of F. S. Royster Guano Co., Macon, became vice president and John R. Allman of Southern Cotton Oil Co., Macon, was elected as new director. Hold-over directors are Loy Everett of Virginia-Carolina Chemical Corp., Albany, and Ridley Monk of Southeastern Liquid Fertilizer Co., Albany.

Weyman W. Harley of Southern Fertilizer & Chemical Co., Savannah, immediate past president of the organization, became director-at-large for the coming year.

The afternoon meeting at which Ralph Boynton presided offered a varied program. After a welcome from Dr. C. C. Murray, dean and director of the College of Agriculture, came a panel forum on "Soil Testing as Related to Fertilizer Usage in Georgia." Participating were R. L. Carter, O. E. Anderson and H. F. Perkins of the University staff; Frank Boyd of Virginia-Carolina Chemical Co., Montgomery Ala.; and S. L. Welborn, Jackson County agent.

Following was an informative talk on "Selling Fertilizer" by Raoul Alstetter, vice president of National Plant Food Institute, Washington. Illustrating his message with graphic slides, Mr. Alstetter expanded the NPFI theme of greater production on fewer acres at lower costs as a solution to the surpluses and a cure to falling farm income.

Retiring President W. W. Harley conducted the reports on activities of the Society, calling on Fielding Reed for the secretary's and treasurer's reports. Ralph Johnston reviewed the Grazing System and Feed Production Contest activities, and Francis Johnstone told of the Horticultural Essay Contest's progress.

Finale of the afternoon session was a series of talks on "Inter-relation of Plant Breeding and Soil Fertility" by A. R. Brown and Dr. Harold Morris of the College and Dr. Glenn W. Burton of Georgia Coastal Plains Experiment Station, Tifton.

Featured speaker at the joint banquet, where Dr. Morris presided, was Dr. M. B. Russell, head of the Agronomy Department of the University of Illinois. Speaking on "Soil Management Principles and Practices," he urged a 3-point team of basic principles to carry practices toward the objective: **1.** Using the kinds and amounts of plant food necessary for efficient crop production, **2.** Maintaining a physical condition in the soil that will enable the plant to utilize the nutrients and moisture, and **3.** Preventing loss of productive capacity through erosion.

KEY TO PICTURES

1. Dr. Harold Morris of the University of Georgia College of Agriculture, Athens, president of the Georgia Section, American Society of Agronomy, who emceed the banquet, and the featured speaker, Dr. M. B. Russell, head of the Agronomy Department of the University of Illinois. **2.** Jim Elder of Swift & Co., Albany, successful bidder for first gift of the phony-money auction, receives his prize from F. L. Wooten, Jr., Armour Fertilizer Works, Atlanta, whose firm donated it. **3.** Raoul Alstetter of National Plant Food Institute, Washington, counts his "bankroll" with some other anxious bidders. **4.** Another couple of million changes hands with one roll of the "Monte Carlo" wheel. **5.** More millions hinged on this roll of the dice. Prize awards were made for those who ran their million bucks into a small fortune.

NPFI Opposes Freight Rate Increase

Granting of a proposed 7 per cent freight rate increase by the Interstate Commerce Commission would impose an insurmountable hardship on farmers and the fertilizer industry, according to Paul T. Truitt, Executive Vice President, National Plant Food Institute. The Institute has filed with ICC a protest and request for suspension of increased freight rates on fertilizer and fertilizer materials.

"Freight rates now constitute a disproportionately high share of the total cost of fertilizer and this at a time when farm income is near disastrously low levels," he said. "Any increase in the cost of agricultural production only would add further to the serious farm problem that faces the nation. The assumption by the railroads that any increased freight charges could be absorbed by the industry or by the farmer is not true in the case of fertilizers, plant food costs have been held to the lowest level of any major item entering into the cost of agricultural production."

"Farm income has declined substantially," he said. "The outlook is for additional declines during the coming year. The farmer will have less money with which to buy fertilizer. This indicates a decline in farm consumption of fertilizer even if there is no increase in the cost because of a freight rate increase. To impose an increase in freight rates on fertilizer under these conditions would run counter to the long-established policy of the Commission to keep freight rates on fertilizers at the lowest reasonable level because of their economic value to the farmer and because their use by the farmer encourages a high production of materials for shipment by the carriers."

In asking the ICC to suspend the effective date of Ex Parte 196, "at least insofar as the proposed increases would apply to the rates on fertilizer and fertilizer materials," Mr. Truitt emphasized that "farmers are not in a position to absorb additional costs of transportation" and added that "both farmers and the fertilizer industry find themselves in the unfavorable position of facing further reduction in income at a time when virtually every other segment of the economy is booming." He said that "fertilizer is one of the most effective 'tools' that farmers have in fighting the so-called price-cost-squeeze and neither they nor the fertilizer industry can stand further freight rate increases under present economic conditions."

PAC. N.W. PLANNING JUNE MEET

A committee on arrangements for the seventh annual Pacific Northwest Fertilizer Conference, to be held at Yakima, Washington, June 28, 29, and 30th met at Yakima last month to outline the program events for the conference. Nels Benson, chairman of the committee, presented a tentative program for the speaking sessions. An innovation this year will be field demonstrations of application of fertilizers. Machinery houses will furnish the equipment for such demonstrations, which will be held Saturday morning. Norman Hibbert is in charge of this phase of the program. A banquet will be held on Thursday night with appropriate entertainment. Friday night will be open. Noon luncheons will be held on Thursday and Friday.

The Association is offering three $100 scholarships to agronomy students at Oregon State College, University of Idaho, and Washington State College, for the coming year. Method of selection has been turned over to the Soil Improvement Committee, Grant Braun, Chairman.

PACIFIC DEALER DAY BIG SUCCESS

The first annual Fertilizer Dealer Day, sponsored jointly by the Pacific Northwest Plant Food Association and the Soils Department, Oregon State College at Corvallis, Oregon, was held at the College, January 18th. Approximately 150 were in attendance, at least half of whom were fertilizer dealers and the largest group of dealers ever to be assembled in the state.

The program was aimed at dealers and especial efforts were made by the Plant Food Association and the College to provide practical subjects in an educational program. Subjects were selected by a joint Committee of the Association and Thomas Jackson, Soils Conservation Specialist at the College, who was chairman of the day. This is the first of several such schools which the Plant Food Association is endeavoring to sponsor throughout the Pacific Northwest in the current year, aimed at educating fertilizer dealers in the proper usage, application, timing, etc. for the benefit of their farmer customers.

1. Tom Pfund, Chehalem Valley Mills, Newberry, Oregon, and group immediately after conference.
2. Wm. Chorlton, Oregon-Washington Fertilizer Co., Portland, Oregon.; Wayne Olsen, Derry Whse. Company, Rickreall, Oreg.
3. Robert Sims, Farmers Feed & Supply Co., Forest Grove, Oreg.
4. Clarence Curry, Monmouth Coop. Whse., Monmouth, Oreg.
5. K. D. Butchek, Portland, Oreg., John McGinley, Spokane, Wash., Hugh Templeton, Portland, Oreg., Wm. Moore, Portland, Oreg., all with Balfour, Guthrie & Co.
6. Gus Moeller, C. C. Ruth, C. C. Ruth & Co., Roy, Oreg.; Knox McDaniel, White Star Concentrates Co., Portland, Oreg., and C. C. Ruth, C. C. Ruth & Co., Cornelius, Oreg.

DINGS ANNOUNCES NEW MAGNET LINE

Ding Magnetic Separator Company, has recently announced a newly designed line of non-electric Alnico Perma-Plate Magnets incorporating an entirely new concept of tramp iron removal by the "Dynamic" principle of magnetic attraction.

Further details are contained in Catalog 1205-D, which may be obtained from Dings Magnetic Separator Company, 4740 W. Electric Avenue, Milwaukee 46, Wisconsin.

CROP CHEMICALS

MEMPHIS MEETING STIRS UP WIDE INTEREST IN SYSTEMICS

These discussions which went on at the cotton production conference in Memphis, back in December have stirred up widespread interest in Insecticide 3911—the new systemic pesticide which is to be applied as a seed treatment. While only limited test quantities are available for this season, and tests are still considered inconclusive by agronomists, the new technique suggests relief for cotton planters, and for growers of a wide variety of truck and other crops.

More broadly than that, the feeling seems to be that the whole basic principle has a bright future. The idea of an insecticide which is applied to the seed and then spreads through the plant by systemic action is hailed as a potential forward step of major importance. USDA is studying other chemicals as potential systemics.

American Cyanamid, who make 3911, have named it Thimet, and plan to distribute it in the Texas and Mississippi cotton areas. At the same time, they point out, tests are going forward and showing promising results on corn, peas, beans, lettuce, beats, peanuts, potatoes, tree fruits and tobacco seedlings.

Thimet has been used with success during the past season on thrips, aphids, spider mites, cotton flea-hoppers, leaf miner, whitefly. Various workers disagree as to boll-weevil control, but this may be a matter of local conditions and further tests will tell the story more clearly.

Anyhow, a lively interest has developed in this new field of pest control, and the coming season will tell the story.

* * *

A newly developed bait spray that provides effective, low cost control of destructive fruit flies is envisioned by the U. S. Department of Agriculture of potential value to Southern U. S. fruit producers.

Used effectively against all kinds of fruit flies in Hawaii, it is now being used against the Mexican fruit fly along the California-Mexico border.

The new bait spray—which depends upon protein hydrolysate for the bait and malathion or parathion, organic phosphate insecticides, for the killing action—was developed by Loren F. Steiner of USDA's Agricultural Research Service.

Bait spray attracts the flies so that complete coverage of all foliage on each tree is not necessary. The baits also induce a feeding response, which means less toxicant is required to kill the flies than with conventional sprays that depend upon contact and residual toxicity. The result: better control at reduced costs.

* * *

Farmers can control European corn borers next summer by using DDT in a new granular form, according to C. C. Burkhardt, Kansas State College, Manhattan, Kans., agronomist. Experts recommend 15 to 20 pounds of five per cent granular DDT to the acre, which is sifted over corn rows and rolls into the whorls of growing leaves.

* * *

Virus-free strawberries have yielded about four times as much fruit as virus-infected plants, according to findings at the Experiment Station at Geneva, N. Y.

* * *

A sesame-oil product that boosts the killing power of pyrethrum insecticides 30-fold may stimulate the South's infant sesame industry.

The new product is sesamolin, strictly a laboratory chemical as yet. Sesamolin not only boosts the kill—it increases the knockdown, too.

USDA chemist Morton Beroza obtained sesamolin from sesame oil and proved its toxicity-boosting power at the ARS Agricultural Research Center, Beltsville, Md. He has found that sesamolin has a methylenedioxyphenoxy molecular group, so is just slightly different from present commercial boosters, which contain a methylene dioxyphenyl group. That small difference has a big effect. It takes 5 times as much of the best commercial synergists for a 12-fold boost as the amount of sesamolin that will boost pyrethrum's effectiveness 30-fold, USDA states.

Sesame growing, just starting in the South, picked up when cooperating State-USDA researchers created new non-shattering varieties that could be harvested mechanically. Plantings were 12,000 to 15,000 acres in 1955. Demand for sesamolin may further stimulate production.

* * *

Emergency shipments of Shell's dieldrin have been loaded at Idlewild Airport, New York, for shipment to Buenos Aires, where it is used in fighting one of the worst grasshopper plagues Argentine farmers have experienced in years. A total of 106,000 pounds are being airlifted . . . enough to protect approximately 1,600,000 acres. It was a similar shipment from Shell that killed the plague of locusts that was threatening crops in the Middle East three years ago, as we reported at the time.

* * *

The publication of a new safety data sheet on napthalene (SD-58) was announced January 6 by the Manufacturing Chemists' Association.

The 12-page booklet, part of a continuing series of safety data sheets, gives properties and essential information for the safe handling and use of napthalene, including material on shipping containers, storage, waste disposal and health hazards and their control.

Napthalene has wide usage as a starting point in the manufacturing of many chemicals such as fungicides.

Copies of Chemical Safety Data Sheet SD-58, Napthalene, may be obtained from the Manufacturing Chemists' Association, 1625 Eye Street, Northwest, Washington 6, D. C., at 30 cents each.

* * *

"Corn's Hidden Enemies," the film story of one corn farmer's successful fight against soil insects, is being reissued free of charge to county agents and other farm leaders by Shell Chemical Corporation.

Since first introduced it has been viewed by thousands of farmers and agricultural experts, and has been instrumental in informing them about the true story of underground corn insects.

The film deals with the soil insect problems of a Danville, Iowa, corn farmer named Howard Waters, and the measures he took to save his

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crop. In the movie, Waters calls on the local county agent for help in his fight against the underground pests which are ravaging his fields. The agent, in turn, asks advice from Iowa State College where entomologist John H. Lilly suggests that chemical insecticides be used.

Waters follows the entomologist's advice and applies aldrin to his soil, and the film shows the successful results.

Prints of "Corn's Hidden Enemies" may be booked from the Shell Film Library, 624 South Michigan Avenue, Chicago 5, Illinois. When ordering, it is recommended that at least one alternate delivery date be listed. The film has a running time of 12 minutes.

Northeast Weed Control Conference

The Tenth Annual Meeting of the Northeastern Weed Control Conference was held in New York City, January 6, following the Charter Meeting of the Weed Society of America held on January 4 and 5 at the same location. Newly elected officers for the Northeastern Weed Control Conference are: president—L. L. Danielson, Virginia Truck Experiment Station; vice-president—C. L. Hovey, Eastern States Farmers' Exchange, W. Springfield, Massachusetts; secretary—R. J. Aldrich, N. J. AES; treasurer—D. A. Shallock, New Jersey AES. Attendance this year was 667 as compared with 513 last year.

Two noteworthy awards were presented at the conference. W. Kennard Lacy, assistant County Agent of Otsego County, New York, received an award for his outstanding extension work in chemical weed control in forage crops. Another award for the outstanding paper presented at the conference went to C. C. Dowler and N. M. Baughman of the West Virginia AES. The paper was entitled, "Recovery of DNOSBP as Affected by Soil Properties.

700 AT WEED SOCIETY CHARTER MEET

Nearly 700 agricultural leaders from all sections of the United States and from Canada and Great Britain attended the charter meeting of the Weed Society of America at the Hotel New Yorker, New York City, January 4 and 5, 1956. The theme of the two day meeting was "Modern Weed Control — A New Science." Ninety papers pertaining to all phases of weeds and their control were presented at the meeting.

W. B. Ennis, Jr. was elected at the meeting to serve as President of the Society for the next two years. He suceeded R. H. Beatty, American Chemical Paint Company, Ambler, Pennsylvania, who served as President during the organizational period of the Society. Ennis is an Agronomist, Weed Investigations Section, Agricultural Research Service, United States Department of Agriculture in cooperation with Mississippi State College, State College, Mississippi.

Other officers of the Society announced at the meeting include: Vice-President—A. S. Crafts, University of California, Davis California; Secretary—W. C. Shaw, Agricultural Research Service, U. S. Department of Agriculture, Beltsville, Maryland; and Treasurer-Business Manager—W. C. Jacob, University of Illinois, Urbana, Illinois.

The next meeting of the Weed Society of America will be held January 13, 14, and 15, 1958 at the Hotel Peabody, Memphis, Tennessee with the Southern Weed Conference serving as the host conference.

Clark Equipment Announces Subsidiary

Clark Equipment Company announced in January formation of a new subsidiary, Clark Equipment International, C. A., to consolidate export functions of the firm's operating divisions throughout the world, and to promote new markets. At present, Clark's Industrial Truck division has licensees in France, Belgium, West Germany and Australia.

A new plant is now being constructed by Canadian Clark, Ltd. at St. Thomas, Ont., and will be devoted primarily to the production of tractor shovels and excavator cranes.

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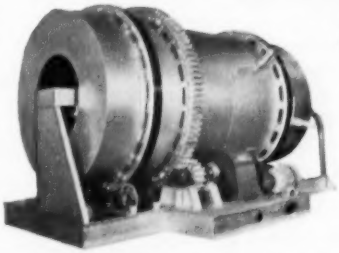

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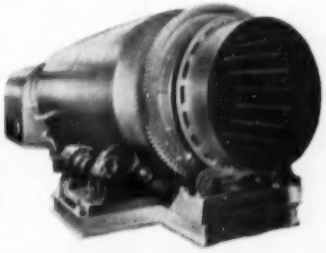

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1. Wm. I. Ziegler, newly elected Chairman, Pacific N. W. Agricultural Chemical Industry Conference—District Manager, Agricultural Chemical Division, California Spray Chemical Co., Portland.
2. C. O. Bernard, Executive Secretary, Western Agricultural Chemical Association. Ed Turner, retiring Chairman, Pacific N. W. Agricultural Chemical Conference, District Manager, Chemicals Division, California Spray Chemical Co.
3. Charles Starker, Research Agronomist, Pacific Supply Cooperative, Portland, Oreg.
4. Delwyn W. Dean, Western Field Representative, Pesticide Regulation Section, USDA, San Francisco, Calif.
5. Dr. Horace Telford, Entomologist, Washington State College, Pullman, Wash.; Stewart Lockwood, California State Dept. of Agriculture, Sacramento.
6. O. B. Hitchcock, Chemical Agro. Corp., San Francisco; Dr. Rosemary Von Runker, New York Chem. Agro. Corp.
7. Roderick Sprague, Pathologist, Wenatchee Station, Washington State College; Harry Anderson, Dominion Laboratory, Victoria, B. C.

ZIEGLER HEADS NW CROP CHEM GROUP

The third annual pacific Northwest Agricultural Chemical Industry conference was held at the Benson Hotel, Portland, Oregon with approximately 350 in attendance from the Western states. One of the points of interest as far as the fertilizer industry was concerned was a panel discussion on the Miller Act.

Usage of Aldrin, Heptachlor and Chlordane in fertilizers, particularly in custom mixes has increased in the Pacific Northwest—particularly Aldrin—and labeling requirements, usage, etc. came in for particular discussion at the panel. Delwyn Dean, field representative of the Pesticide Regulation Section, USDA, of San Francisco, Calif. was on the panel and outlined requirements which must be met under the Miller Bill.

Various soil pests were in for discussion at another panel session with entomologists from various State Agricultural Colleges pointing out methods of control.

Weed control, safety and pesticide control and various other technical subjects completed the program.

Elected Chairman of the Pacific Northwest Chemical Industry Conference for next year was Wm. I. Ziegler, district manager of the Agricultural Chemical Division of the American Cyanamid Co. He replaces Ed Turner, district manager of the chemical division of the California Spray Chemical Co. of Portland.

RR & R

(Continued from page 63)

scientist, with D. G. Harris, North Carolina AES worker. They have developed a neutron measure for moisture content, based on the fact that the neutrons penatrate the soil, but are stopped by the hydrogen in the water. This bounce is translated into a scale which may be read directly to measure moisture or the lack of it. The counter is portable, weighs only 13 pounds, and gives a valid reading in 2 minutes.

They are going on with the development now of a counter which will give a reading at selected depths.

Blaw-Knox Issues Process Plants Catalog

Design, engineering, construction and initial operation of process industries plants by the Chemical Plants Division of Blaw-Knox Company are outlined in a colorful, new catalog, entitled "Process Plants by Blaw-Knox," just announced by the company.

Illustrated with photographs of major projects, the brochure is designed to provide information on the diversity and scope of work undertaken and completed in the process industries field.

Subject matter of the 20-page publication covers the following industries: general industrial chemicals; fine chemicals and pharmaceuticals; organics, dyes and intermediates; food processing; fertilizers and pesticides; high and low temperature processes; nuclear energy and special development; natural and synthetic fuels; metals processing and treatment; waste recovery; wood utilization; chlor-alkali production; resins and plastics; fats and oils; petroleum and petrochemicals; plant rehabilitation and modernization.

Copies of the catalog, Bulletin No. 2514, are available upon request to the Chemical Plants Division, Blaw-Knox Company, Pittsburgh, Pa.

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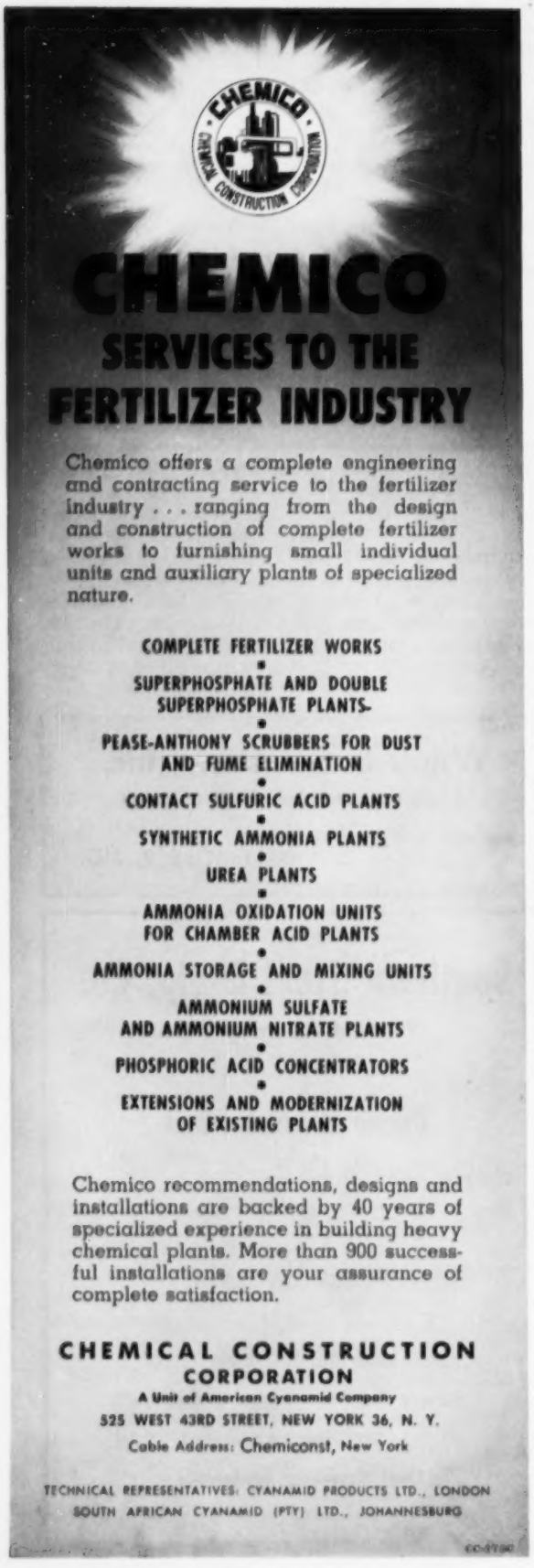
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INDEX TO ADVERTISERS

Abrasion and Corrosion Engineering Co. 35
Albemarle Paper Manufacturing Company 11
Allied Chemical & Dye Corporation (Nitrogen Div.) Front Cover
American Agricultural Chemical Company, The Inside Front Cover
American Limestone Co.
American Potash & Chemical Corporation 23
American Vermiculite Company, Inc. 58
Arkell Safety Bag Company 41
Arkell and Smiths 36
Armour Fertilizer Works 12
Ashcraft-Wilkinson Co. 14, Back Cover
Atkins, Kroll & Company 20
Atlanta Utility Works 58

Bemis Bro. Bag Co. 28-29
Berkshire Chemicals, Inc. 49
Blaw-Knox Co. Chemical Plants Division—Equipment Division 22
Blue Valley Equip. & Engr. Co.
Bradley & Baker (U. S. Phosphoric Products) 9
Burlap Council of Indian Jute Mills Assn. 53

Chantland Mfg. Company 58
Charlotte Tank Corporation 18
Chase Bag Company 49
Chemical Construction Corporation 74
Chicago Fertilizer Co. 58
Climax Molybdenum Company 50
Cole Manufacturing Co., R. D.
Commercial Solvents Corporation 19

Davidson-Kennedy Co.
Davison Chemical Co. 5
Deane Agricultural Service, Inc. 49
Dow Chemical Company, The 57
Duval Sulphur and Potash Co.

Escambia Bay Chemical Corp.
Evans Metal Company 22

Fertilizer Equipment Sales Corp. 62
Flint Steel Corporation 46
Fulton Bag & Cotton Mills 22

General American Transportation Corporation 4
Grace Chemical Company

Hammond Bag & Paper Company
Hudson Pulp & Paper Corp. 17

International Minerals & Chemical Corporation
Phosphate Chemicals Division 10
Phosphate Minerals Division 25
Potash Division

Johnson Company, C. S. 60

Koppers Company, Inc. (Tar Products Div.)
Kraft Bag Corporation 8

Lancaster, Allwine & Rommel 62
Law & Company 58
Link-Belt Company
Lion Oil Company, A Division of Monsanto Chemical Co. 3
Lummus Company, The 13

McIver & Son, Alex. M. 22, 62

National Lime and Stone Co., The
New York Hanseatic Corporation 67
Nitroform Agricultural Chemicals Division
Woonsocket Color & Chemical Co. 72
Nitrogen Division (Allied Chemical & Dye Corp.) Front Cover

Phelps Dodge Refining Corp.
Phillips Chemical Company 15
Potash Company of America Inside Back Cover

Quaker Oats Company, The (Chemicals Dept.) 64

Raymond Bag Company, The 32
Renneburg & Sons Co., Edw. 71

Sackett and Sons Co., The A. J. 26-27
St. Regis Paper Company, Multiwall Bag Division
Shell Chemical Corporation
Shuey & Company, Inc. 73
Simplicity Engineering Company 54
Smith-Rowland Company
Sohio Chemical Co.
Southern Lead Burning Co. 64
Southern States Phosphate and Fertilizer Co. 58
Southern Steel Equip. Co. 73
Spencer Chemical Company 34
Stedman Foundry & Machine Company, Inc. 64
Stephens-Adamson Manufacturing Co. 62
Sturtevant Mill Company

Tennessee Corporation 45
Texas Gulf Sulphur Co. 16
Tull Metal & Supply Co., Inc., J. M.

Union Bag & Paper Corporation
Union Special Machine Co.
U. S. Phosphoric Products Division, Tennessee Corp. 9
United States Potash Company, Inc. 21

Virginia-Carolina Chemical Corporation

Weatherly Company, The D. M. 7
Wiley & Company, Inc. 73
Willingham-Little Stone Company
Woodward & Dickerson, Inc. 58

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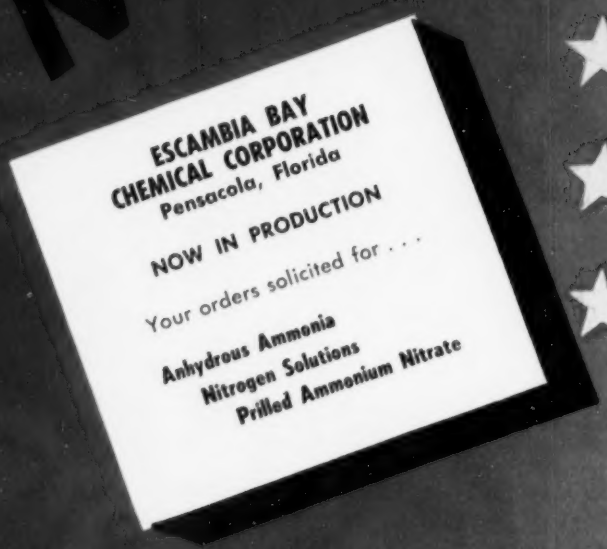

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